

# Wildlife Conservation Society

ANNUAL REPORT 1999





# discover ♦ protect ♦ involve

The Wildlife Conservation Society is dedicated to being the most effective conservation organization, protecting and promoting a world rich in wildlife and wilderness. That mission is achieved through the nation's largest system of zoological facilities—the Bronx Zoo, the New York Aquarium, the Wildlife Centers in Central Park, Queens, and Prospect Park, and the Wildlife Survival Center on St. Catherines Island, Georgia—as well as through pioneering environmental education programs that reach more than three million people in the New York metropolitan area and that are used in all 50 states and 14 nations, and through the world's leading international conservation program working in 52 nations to save wild landscapes and the animals that depend on them. We are working to make future generations inheritors, not just survivors.

The City of New York, through its Department of Cultural Affairs, provides part of the annual operating support for the Bronx Zoo and the New York Aquarium, both of which occupy City-owned property. The Wildlife Conservation Society administers the Central Park, Queens, and Prospect Park Wildlife Centers for the City's Department of Parks and Recreation, which provides annual operating support for the Centers. The Wildlife Conservation Society also receives annual funds from the Natural Heritage Trust, a program of the New York State Office of Parks and Recreation.







In celebration of the Bronx Zoo's 100th anniversary, WCS opened Congo Gorilla Forest (left) in June. This innovative exhibit directly involves zoo visitors in the conservation of gorillas (right) and other Central African animals.

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## The Covers

◆ The mandrill is one of the primate species featured in the Bronx Zoo's new Congo Gorilla Forest. WCS Conservation Ecologist Lee White and field scientist Kate Abernethy use radio telemetry to follow groups of mandrills in Gabon to better understand mandrill behavior and ecology.

◆ Inside front cover, artist Perry Gargano polishes a replica of the skull of a red river hog (page 1), for display in the new exhibit.







# no other moment

in time has so urgently beckoned each of us to commit to protecting our natural world. WCS provides more ways for more people to more effectively make that commitment.

Today, our work takes place against a remarkable backdrop. We are witnessing the birth of an incredibly global community—

connected effortlessly by the Internet, circumnavigated daily by mass transportation, monitored instantly by media 24 hours a day, and fueled nonstop by technological advances. The future of wildlife is at a truly critical juncture. Will this new global perspective help us fully actualize our stewardship of the Earth? The natural world is paying an ever-higher price on this incredibly shrinking planet: Dwindling wild habitats and compromised ecosystems could forecast an indescribably bleak future for all species—including our own.

The one hopeful constant, in any community, is the power of its people. In this global community, our ability to shape our future by thoughtful choice, rather than chance, will directly determine the survival of wildlife and wild places—and ourselves. To this end, the spectacular Congo Gorilla Forest, which opened this year at WCS's Bronx Zoo, gives visitors a chance to directly help gorillas in Africa with the push of a button. Millions of people can visit the WCS web site and help support our scientists studying sea turtles in the

Caribbean, rare Andean leopards in Argentina, or antelope on the Tibetan Plateau. In classrooms from California to China, children are eagerly discovering the facts and unraveling the mysteries of wildlife through WCS's award-winning education materials.

One member of the WCS family who perhaps best exemplifies the power of people is William Conway, who in September stepped down as President and General Director. Since 1956, when he joined WCS as Associate Curator of Birds at the Bronx Zoo, he began shaping this organization with his own prescient global vision. Bill Conway redefined modern zoos as centers for education, inspiration, and conservation. His relentless drive to protect wildlife and wild places has helped WCS preserve millions of acres of natural habitat worldwide and provide more time to countless species. Bill Conway has, quite simply, made a difference in the world, and his invaluable contributions will continue at WCS, through his ongoing role as Senior Conservationist.



This Annual Report is a testament to the potency of personal action. Our achievements over the past year were made possible by the support and involvement of literally millions of individuals: visitors to our New York City wildlife parks, WCS patrons and members, volunteers, government and community leaders here and abroad, and, of course, our remarkable staff.

Many generous friends took action on behalf of wildlife by sustaining some of WCS's most significant accomplishments in 1999. There are two whose extraordinary support provides a bedrock for our success: The City of New York and the Lila Acheson Wallace Fund for the New York Zoological Society. Support for Congo Gorilla Forest was as impressive as the exhibit itself. Joan O.L. Tweedy deserves special thanks for her remarkable gifts to Congo as well as to our international efforts. Major gifts and pledge payments for Congo Gorilla Forest were received from The George F. Baker Trust, The Cleveland H. Dodge Foundation, Inc., The Tina and William E. Flaherty Family Foundation, Mr. and Mrs. John R. Frawley, Jr., The Freed Foundation, the estate of George Hecht, Enid A. Haupt, The Heckscher Foundation for Children, the Irwin family, The New York Times Company Foundation, The Howard Phipps Jr. Foundation, Mr. and Mrs. Jack Rudin, Denise R. Sobel and Norman K. Keller, the Starr Foundation, Mr. and Mrs. Michael Steinhardt, The Eugene V. and Clare E. Thaw Charitable Trust, The Thorne Foundation, and Mr. and Mrs. Brian Heidtke and Virginia and Warren Schwerin, who also contributed to WCS's field veterinarian program.

Mr. and Mrs. Edgar M. Cullman and The Morris Family Foundation supported Congo's education mission. The Starr Foundation gave a grant for WCS's teacher training programs in China.

As we brought Africa to life in the Bronx, we continued to sustain wildlife in African habitats. The Robert Wood Johnson 1962 Charitable Trust and the Willard T.C. Johnson Foundation provided major underwriting for the work of John and Terese Hart in the Democratic Republic of Congo. WCS Advisor Glenn Close and her mother Mrs. Bettine M. Close provided special support for key WCS conservation projects in Central African forests. The John D. and Catherine T. MacArthur Foundation funded a new grant for expanded research, training, and conservation programs in the war-torn nations of Africa's Rift Valley.

With visionary assistance from the Robert W. Wilson Foundation, WCS launched a bold approach to worldwide conservation. The landscape initiative focuses conservation efforts on key animals—from eagles to elephants to elephant seals—whose survival depends on the preservation of the vast areas over which they range.

One landscape species is the tiger. WCS Advisor Gary Fink continued his generous support of our unparalleled work to protect

these magnificent big cats. And the National Fish and Wildlife Foundation, in partnership with the Exxon's Save the Tiger Fund, supported new grants for tiger conservation in Siberia, Myanmar, China, and Thailand.

Other international programs—and countless other species—benefitted from the generosity of steadfast friends. The Liz Claiborne and Art Ortenberg Foundation, The Walt Disney Company Foundation, and Edith and John Newberry provided extraordinary support for numerous WCS overseas projects.

WCS's vigorous conservation efforts across North America attracted key support, as well. The National Fish and Wildlife Foundation helped fund research on vital insect pollinator species and habitats in California. Lyndon Olson provided core support for projects spearheaded by Dr. John Weaver to save lynx and other carnivores of the United States and Canada.

And even closer to home, The Doris Duke Foundation and the Surdna Foundation provided significant funding for the WCS Metropolitan Conservation Alliance, and our efforts to better incorporate ecosystem and wildlife conservation into land-use planning throughout the greater New York City and tri-state region.

The various innovative programs of our Wildlife Health Sciences and Science Resource Center, both headquartered at the Bronx Zoo, received generous assistance. Dr. Judith P. Sulzberger continued her support of our field veterinarian program, while

The Perkin Fund supported work on wildlife nutrition. A grant from the Prospect Hill Foundation strengthened the WCS Global Information Systems unit, to systematically map available landscapes and prioritize global conservation planning for endangered species.

WCS's unique range of conservation work allows for an equally remarkable range of opportunities for individuals and organizations to become involved with saving wildlife. The David and Lucile Packard Foundation supported the work of WCS Director for Marine

Conservation Ellen Pikitch and the WCS Fisheries Program. In Manhattan, the Central Park Wildlife Center's Tisch Children's Zoo received continued support from the Families of Laurence A. and Preston R. Tisch. Our work with endangered species at the Wildlife Survival Center on St. Catherines Island, Georgia, benefitted again from the generosity of the Edward John Noble Foundation.

As WCS meets the challenges of the twenty-first century, your commitment to the cause of conservation will remain the foundation on which we continue to build a more secure future for the natural world and all its inhabitants.

## CITY SUPPORT

WCS IS GRATEFUL to the City of New York, which provides significant operating funds through the Department of Cultural Affairs and the Department of Parks and Recreation. We thank Mayor Rudolph Giuliani, City Council Speaker Peter Vallone, Bronx Borough President Fernando Ferrer, Brooklyn Borough President Howard Golden, and members of the New York City Council for their support of capital projects. The elected officials of the City of New York are vital to the public/private partnership on which WCS's service to the people of New York rests.

**DAVID T. SCHIFF**

Chairman of the Board of Trustees



# this was a year

of great celebration and sober reflection. In observance of the Bronx

Zoo's 100th anniversary, WCS opened its most ambitious, innovative, and effective animal exhibit ever—the Congo Gorilla Forest—on June 24. This 6.5-acre exhibit is far more than a conventional zoo display. Congo Gorilla Forest gives our gorillas, okapis, red river hogs,

and other Central African species spacious habitats that convey to guests a remarkable feeling of their homes in the wild. Informative, interactive graphics and special exhibits combined with a state-of-the-art environmental education center help visitors, children, and schoolteachers learn about the ecology of these animals and their needs. Congo Gorilla Forest highlights WCS's international field programs in Africa's vast Congo Basin. And in a special Conservation Choices Gallery at the end of the experience, visitors are given the opportunity, via computer, to decide which WCS field conservation projects in Central Africa will receive the support of their admission fee.

While the Congo Gorilla Forest exhibit enhances the enjoyment of a zoo visit, its special contribution is a new stream of support for the survival of African wildlife. Congo empowers the zoogoer and is another step in making a visit to the Bronx Zoo an act of conservation. Indeed, Congo Gorilla Forest has proved to be a rousing suc-

cess. As one visitor remarked, "We waited an hour to see Congo, and it was worth it."

When the Bronx Zoo opened its gates in 1899, there were 1.5 billion people in the world. Today, there are six billion. Wildlife continues to dwindle before the accelerating onslaught of human population growth and development. Fifty percent of the world's terrestrial animals are found in tropical rain forest countries where 90 percent of human population growth is taking place. Deforestation is proceeding globally at about 1 percent per year. The last of Earth's forest expanses are in the Amazon, the Congo Basin, and Southeast Asia. The Congo forest is the least known and the most spectacular. It is home to one-fifth of all the species of mammals, hundreds of species of birds, and tens of thousands of plants. It is quickly being lost, however, to timbering, agriculture, and mining interests.

What we don't dispossess, we eat. WCS field scientists have shown that the "bushmeat" hunting of monkeys, peccaries, and



other creatures in the Amazon region of South America ranges from 67,000 to 164,000 metric tons each year. The killing of chimpanzees, gorillas, duikers, elephants, and other African species exceeds a million metric tons annually. It has been estimated that, in 1998 alone, 800 gorillas were eaten in Cameroon. The survival of tropical forests and their wildlife is in serious doubt.

Reflection upon these troubling facts and figures has reconfirmed WCS's central commitment to wildlife conservation. But what strategies will best address the problems? How can we serve our New York communities and use our unique zoo- and aquarium-based expertise to serve conservation? In answer to these questions, WCS has adopted as a major conservation strategy a focus on "landscape species"—those creatures that require the largest areas to ensure their survival and whose preservation will have the greatest positive impact on all the other creatures that dwell in these areas.

WCS landscape (and seascape) species may occur in large concentrations and may migrate across their landscapes. They are often of cultural importance to people both locally and those living in other parts of the world. For example, WCS scientists are investigating the numbers, ecology, and health of Mongolian gazelles and kiangs (a species of wild ass). They have gathered experts from North, Central, and South America to map—with our new GIS (Geographic Information Systems) capabilities—the range and population status of the jaguar, the biggest cat in the Americas. WCS scientists and curators are studying the three subspecies of gorilla and working with local people in Africa and other zoological institutions around the world to ensure the gorillas' survival in the wild and in captivity. And our new Marine Conservation Program is helping to sort out the dynamics of shark and grouper populations in the Atlantic Ocean and coordinating WCS's efforts to protect coral reefs around the world.

WCS's tradition of leadership among conservation and zoological organizations is truly unusual. We are a knowledge-intensive organization. The value of the intellectual capital of the staff is far more important than that of the more tangible assets. In addition to WILDLIFE CONSERVATION® Magazine, WCS staff produce more than 400 publications each year, ranging from scientific and technical reports, to animal surveys and visitor studies, to popular adult and children's books.

The reaction of the public to our programs has been tremendous and heartwarming. WCS membership has increased to 104,000 households. The generous financial support of our trustees, donors, and members made 1999 one of the most successful years in WCS history.

I wrote my first contribution to the Society's Annual Report in 1956 when I was Associate Curator of Birds. This is my last as President and General Director of WCS and Director of the Bronx Zoo. I can imagine no greater privilege than to have served our Society for so very long. From the bottom of my heart, I thank the WCS staff and Board of Trustee colleagues, and all the remarkably caring WCS members for their unfailing help and guidance.

**WILLIAM CONWAY**  
President, Wildlife Conservation Society

## CHAMPION OF THE WILD

by George B. Schaller

IT HAS BEEN SAID that one can judge a great person the way one judges a great ship—by displacement. Given that standard, Bill Conway takes up a huge space. He has been at the center of the world of WCS for over four decades, giving meaning and definition to our professional and personal lives. No single person in the zoo and conservation communities can match his intellectual depths and abilities. He has helped to define and inspire the worldwide conservation movement during the second half of the twentieth century by, among other achievements, integrating the function of zoos—or wildlife conservation parks, as he prefers to call them—with the preservation of species and habitats in the wild.

Usually people have a single talent, or perhaps two. Bill Conway has the creativity and energy to excel in various endeavors. He is an architect of strikingly original zoo exhibits, with a fastidious eye for details that benefit the animals and delight the public. He is an innovator in the management of captive animals, who, with unerring foresight, proposes seminal ideas on seemingly obscure issues that soon are recognized as being of fundamental importance. After 40 years of planning and implementing field projects in Argentina, he can be considered if not the father, then the godfather of conservation there.

A gifted observer, Bill has the perceptions of a biologist with the perspective of a humanist. He understands animals and is deeply concerned for them and their future. Above all, then as now, a large part of his soul is committed to nature, to tallying migratory bird species in spring as they linger in the woodlands of the zoo, to wandering Patagonia's wind-swept shores observing sea lions, right whales, and Magellanic penguins.

As he steps down as WCS President, Bill Conway leaves behind an immense gift to the millions that throng our zoos and aquarium by giving them pleasure, creating a sense of wonder, and by making them aware of nature's splendor and the need to protect it. And he leaves behind a staff imbued with his vision.

Excerpted from WILDLIFE CONSERVATION® magazine.





# I have long respected and participated in the life of our seas

and wildernesses. Nevertheless, I had little exposure to the structure and procedures of conservation and its educational role before my appointment to the presidency of WCS in June 1999 and the actual passing of the baton on September 1. As the months have

unfolded, what has struck me squarely in heart and mind is the informed, passionate, and deep personal commitment of our trustees, advisors, staff, government agencies, and local communities to the mission of WCS.

The achievements and successes of WCS have been many during the past 104 years. My predecessor, William Conway, developed a system of practical and effective conservation and compelling zoo-based education built on solid wildlife science. The work of WCS is far from finished, and the methods for accomplishing conservation are constantly changing. As a leading conservation institution, WCS must not merely keep pace with change, it must be in the vanguard. Never have the stakes been so high—not only in the remote areas of Earth where WCS works effectively to save wildlife, but also in our own backyards and in our zoos and aquarium, where we communicate the challenges of conservation every day.

WCS will boldly confront and address crises in conservation through expanded research, new technologies, improved application of the social sciences, training, on-the-spot education, and funding. Implementing a new master plan to improve infrastructure is a top priority. Rebuilding and expansion will be speeded up at the Bronx Zoo and New York Aquarium, while area-wide conservation education and awareness programs are initiated. Central

Park, Prospect Park, and Queens Wildlife Centers will undergo refurbishing and expansion as well. Communications, service facilities, and animal well being will all benefit from this revitalization.

In addition to the vital conservation science we do in over 50 countries around the world, one of the hallmarks of WCS will be a new, stronger focus on local, regional, national, and international education. These programs will concentrate on achieving wider distribution and constant updating of the unique curricula developed by our education departments. Our Internet presence will be at the top of the class within two years.

Executing this ambitious program will create great demands on staff time, energy, and intellectual resources. The challenges for fundraising are significant but not impossible to meet. WCS should and will be a major engine of change and achievement in the world of conservation.

I extend my sincere appreciation for the opportunity to lead WCS, and a special thanks to Bill Conway for his welcome, wise counsel, and patience during my first six months. I am sure these benefits will continue in the months and years to come, as Bill serves WCS in his role as Trustee and Senior Conservationist.

**CHRISTOPHER H. SMITH**  
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A major WCS effort is saving tigers (above: a Bronx Zoo Siberian tiger; opposite: new WCS President Christopher "Toby" Smith with tiger skull).







# Congo Gorilla Forest

WCS's most far-reaching exhibit yet, Congo Gorilla Forest brings Bronx Zoo visitors face to face with living animals and involves them directly in the preservation of wild animals and wild landscapes.



Congo Gorilla Forest is the largest exhibit WCS has ever undertaken,

and it provides a model approach to integrate a zoo exhibit of living creatures with a call to conservation action. This spectacular exhibit highlights WCS's efforts to understand and protect the Central African rain forest landscape, to study the wild animals that use and depend on the habitats, and to involve local people and Bronx Zoo visitors in effective wildlife conservation.

## EXHIBITS AND GRAPHICS

Completing Congo Gorilla Forest occupied the department, and virtually all WCS staff, during the year. Design and fabrication were completed on the Joan O. L. Tweedy Treasures of the Rain Forest Gallery. Aquatic and terrestrial habitats for 30 species of reptiles, fishes, amphibians, and invertebrates include a bamboo forest with rear-lighted photomurals for rock pythons and a streamside mudbank for ornate Nile monitors. Designers, plumbers, sculptors, and other experts collaborated on the gallery centerpiece, an aquarium for Congo tetras and other fish, enveloped by the stilt roots of a uapaca tree. The sculpted roots conceal aquarium life-support elements as well as planters with driftwood and irrigation for epiphytes.

Outdoor exhibits—including the Judy and Michael Steinhardt Mandrill Forest, with mandrills, red river hogs, and DeBrazza monkeys, and the Lila Acheson Wallace Great Gorilla Forest—were completed in a sequence to permit planting and introduction of the animals prior to the opening. All 55 large artificial trees were finished, as well as the 45,000-square-foot mudbank and rock formations and the almost invisible, stainless steel mesh tents for the colobus and mandrills. Crews installed nearly ten miles

of artificial vines and automated feeders disguised as rocks or trees.

Cast, fabricated, and sculpted objects—such as weaverbird nests, okapi hoof prints, a goliath frog, termite mounds, shelf fungus, primate skulls, and a replica of a Mbuti hunting camp—were added along The Cleveland H. Dodge Foundation Rain Forest Trail.



**WCS Director for Design John Gwynne (top) is enveloped in the Bronx Zoo's misty Congo Gorilla Rain Forest, which brings the wonder of gorillas (right) and other Central African wildlife to millions of visitors (above).**

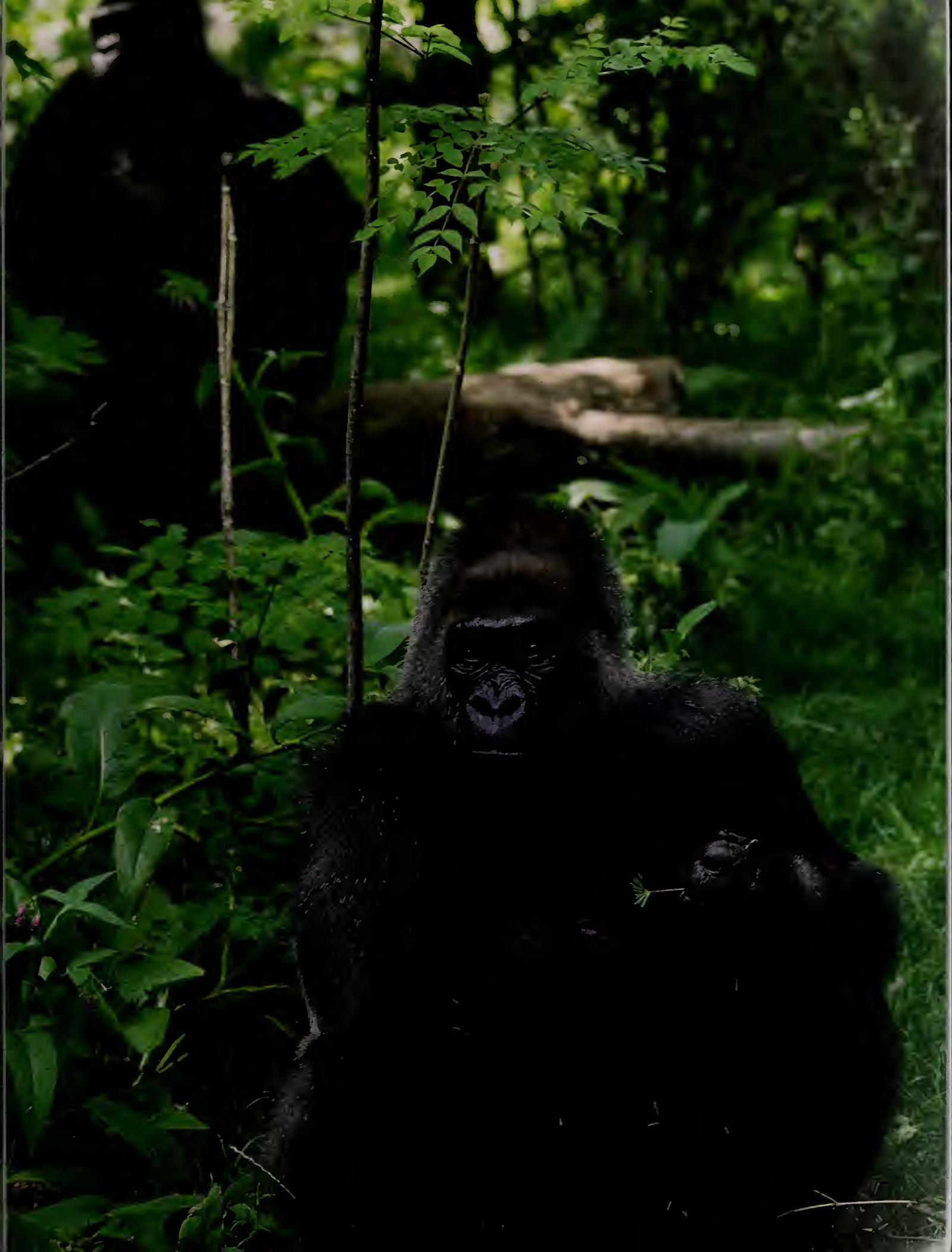
A goal of the exhibit is to communicate sensually, emotionally, and intellectually to the visitor the diversity, splendor, and importance of the habitat. Department and

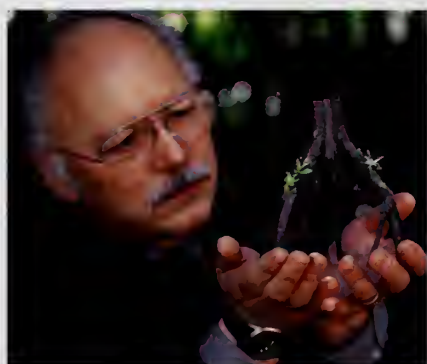
other WCS staff, and illustrators created over 60 drawings that help immerse visitors visually. Collaboration with WCS Media Services and Africa program staff, photography houses, and Archipelago and Owen Electric Production companies, among others, created a film that airs regularly in the C.V. Starr Conservation Theater, and an audio "sculpture" of bird, insect, and primate sounds. The interpretive message focuses on understanding science and how WCS scientists save wildlife and wild places.

Ten years ago, a nursery was started by the Horticulture Department to grow more than 3,000 shrubs, trees, and perennials for the habitats. Altogether, more than 15,000 plants of 400 species create the illusion of an African rain forest at the Bronx Zoo. Years of testing theories and models resulted in Fern Canyon—the first re-creation of a fern gully outdoors in the frost zone. The frost-resistant, internally irrigated wall passed its first winter test.

Voting "booths" were installed in the Conservation Choices Pavilion. Inspired by their immersion in the rain forest, visitors vote how and where their exhibit admission fee will help save wildlife in Central Africa. Then the visitors exit through the Anita and Harry Keefe Gorilla Forest Overlook.







# creating congo

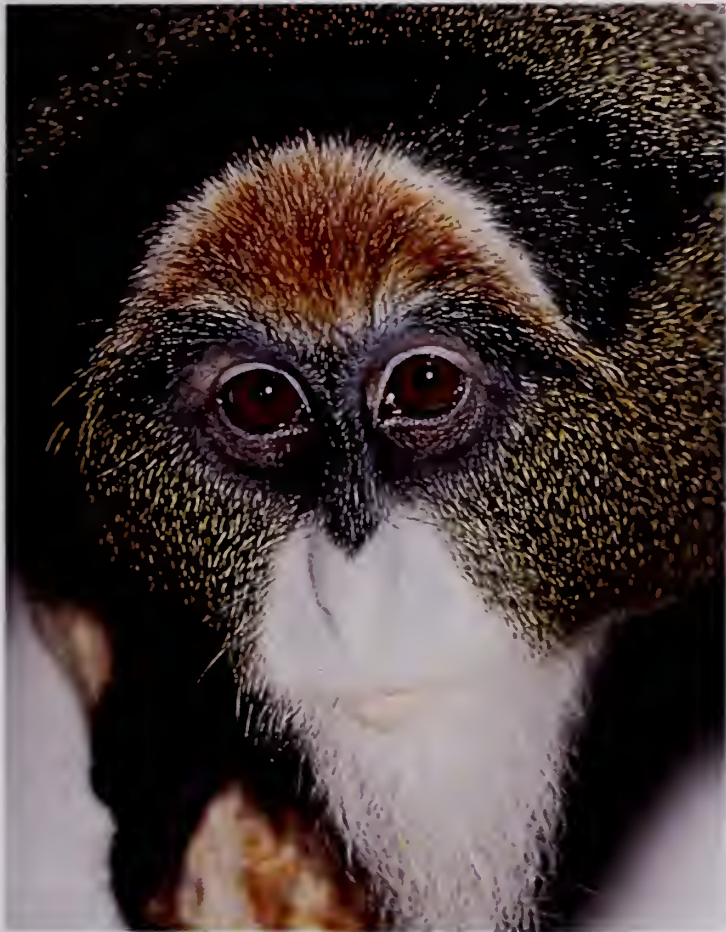
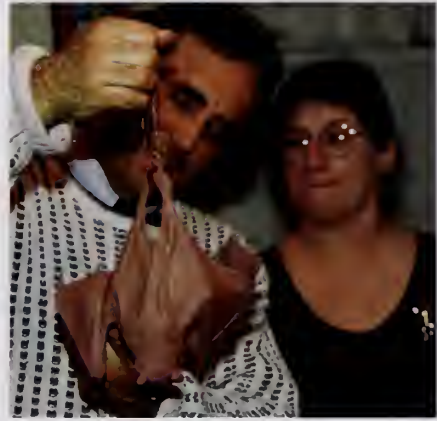
A TREE—AND MUCH MORE—GROWS IN THE BRONX ZOO

The Joan O. L. Tweedy Living Treasures of the Rain Forest Gallery in the Congo Gorilla Forest highlights the importance of biodiversity in the Central African rain forest. The gallery showcases a variety of small creatures, and the Bronx Zoo's Exhibits and Graphics Department designed an aquatic centerpiece framed by the graceful stilt roots of a uapaca tree (above, Creative Director/Exhibition Design Walter Deichmann holds the original model; top, the tree roots hold the water circulation and inner workings of the aquarium).

Meanwhile, other artists, exhibit specialists, and experts created and consulted on parts of the new exhibit. Opposite page, clockwise from top left: Creative Director Sharon Kramer-Loew displays graphic elements; Mammal Curator Pat Thomas consults on a bronze bat with artist Priscilla Deichmann. Artists make buttress roots look real and fashion a Mbuti hunting camp. The hunting camp replica is an important reminder of the human presence in the rain forest. Graphic Designer Peter Taylor installs a gallery exhibit and a worker helps to create rocks. A DeBrazza monkey.











# opening day

CONGO GORILLA FOREST MADE ITS PUBLIC DEBUT ON JUNE 24, 1999



Congo Gorilla Forest helped to celebrate the Bronx Zoo's 100th birthday, opening in June with great fanfare, considerable support from New York City officials, local schoolchildren (below), and authentic African music and dancing (right, Harrambee Dance Company led the procession).

Opposite page, top left: WCS Africa Program staff Lisa Molloy, John Hart, Amy Vedder, and Michael Fay greet Ambassador

Basile Ikouebe, Permanent Representative, Republic of Congo Mission to the United Nations. Top right: Bronx Borough President Fernando Ferrer welcomes guests to the Bronx during the opening ceremony. Bottom right: WCS President William Conway guides dignitaries to the new exhibit.

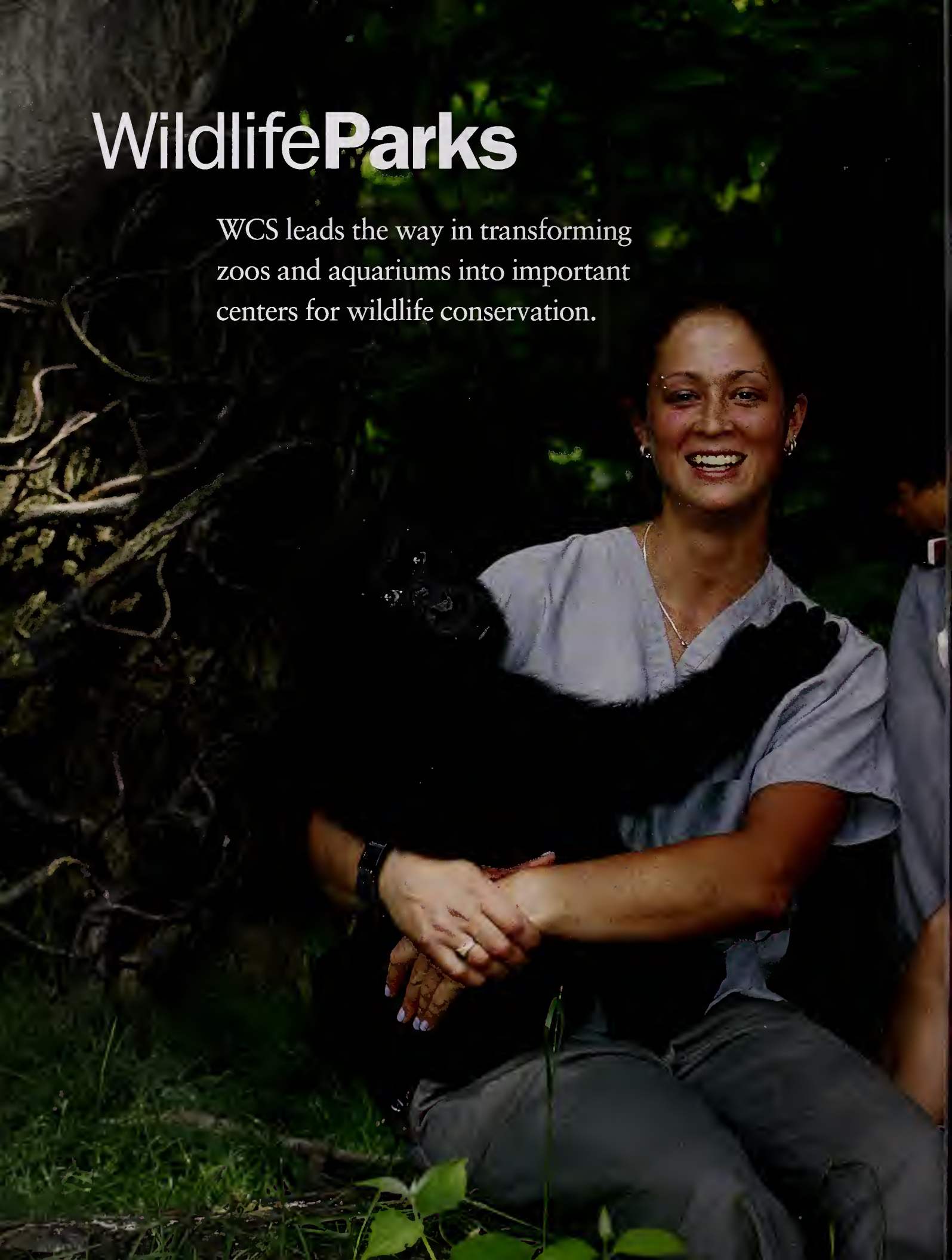
Congo Gorilla Forest immerses visitors in the sights and sounds of the Central African rain forest. Tall glass windows in the Lila Acheson Wallace Great Gorilla Forest bring WCS Trustee Allison Stern (above) up close to the undisputed stars of the new exhibit. Congo Gorilla Forest would not have been possible without the support of WCS Patrons and Friends—here, Joan O.L. Tweedy (opposite page, center right) and Michael and Judy Steinhardt (opposite page, bottom left).





# WildlifeParks

WCS leads the way in transforming  
zoos and aquariums into important  
centers for wildlife conservation.











WCS operates the largest urban system of zoological facilities in the

United States. The four New York City-based zoos and the aquarium, as well as the Wildlife Survival Center in Georgia, all advance the WCS mission by bringing millions of people each year face-to-face with wild animals and their habitats. A visit to a WCS wildlife center is an act of conservation, and each of the animals at the facilities is an ambassador for its species.

WCS is a leader in the development of innovative zoo and aquarium exhibits, in advancing veterinary care, and in the captive breeding and management of rare and endangered species. The Bronx Zoo, New York Aquarium, and Central Park, Queens, and Prospect Park Wildlife Centers inspire audiences to care about wildlife and the natural world through unique experiences with animals and through educational and informative displays and graphics. This year, WCS celebrated the Bronx Zoo's 100th birthday with the opening of Congo Gorilla Forest. The parks are looking ahead and preparing for exciting new directions in the next hundred years.

## BRONX ZOO

### Mammalogy

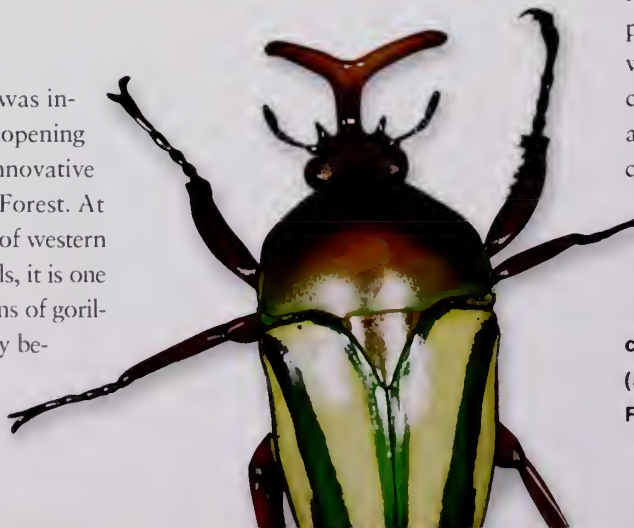
The Mammalogy Department was instrumental in the planning and opening of WCS's most ambitious and innovative animal exhibit: Congo Gorilla Forest. At center stage are the two groups of western lowland gorillas. With 19 animals, it is one of the largest breeding populations of gorillas in North America. At the very beginning of the exhibit, visitors enter the wilds of the

Central African rain forest, where they encounter black-and-white colobus monkeys in the trees. Farther along the trail, okapis browse amid the forest vegetation. These elusive creatures are relatives of the giraffe. Mandrills, DeBrazza monkeys, and red river hogs share an outdoor riverbank exhibit, the first mixed display of its kind anywhere. Wolf's guenons, rarely seen in zoos, inhabit an exhibit centered around a large strangler fig tree. Altogether, 400 animals of 55 species have been acclimated to their new homes in the Congo Gorilla Forest. The move and subsequent introductions to the new exhibits were made possible by the great care and attention of the entire staffs of the animal and health departments.

The mammalogy department manages one of the largest and one of the most important collections in North America. A significant number of its species are threatened, endangered, or extinct in nature. As wild habitats are degraded or disappear and animal populations decline at ever-increasing rates, the department frequently and rigorously evaluates and refines its priorities. Turning its attention to the next millennium, the Mammalogy Department, through its management of 33 primate species, maintains a high priority on exhibiting and breeding primates. The focus for the near future will shift, in part, to New World tropical forest species, such as squirrel, capuchin, saki, and titi monkeys, and particularly the marmosets and tamarins. A management plan for these small but fascinating animals will incorporate the efforts of the mammal collections in all the WCS animal facilities and provide the keeper staffs with increased opportunities for involvement in research and conservation programs.

### Assistant Curator of Mammalogy

Colleen McCann (top) was part of the team coordinating the move of Wolf's guenons (right) and other primates to Congo Gorilla Forest. Inset: a flamboyant flower beetle.











### Ornithology

The department took part in a number of collaborative projects with other zoological institutions. Ornithology Department Chairman and Curator Donald Bruning continued to work with Taman Safari and Taman Mini Bird Park in Indonesia. These efforts resulted in Taman Mini Bird Park being the first Indonesian facility to breed the ground-nesting maleo.

Senior Keeper Patti Cooper worked with keepers at Singapore's Jurong Bird Park on management protocols for birds of paradise. She also visited Taman Safari and assisted with its bird of paradise program. Assistant Collection Manager Marcia Arland visited the Entebbe Zoo, in Uganda, to review their facilities for pied kingfishers. These dramatic-looking colonial nesters usually lose one or two young per clutch, so the department will collect nestlings that might otherwise starve, hand-rear them in Uganda, and bring the adults back to the

Bronx Zoo for display. In return for Entebbe Zoo's participation in this project, WCS will help the zoo develop graphics for Ugandan visitors to learn more about their local bird species.

Assistant Curator John Rowden travelled to Borneo to observe Bulwer's wattled pheasants in the wild. The Ornithology Department has three pairs of these birds in its collection, but to date, the captive-breeding program for the species has been unsuccessful. Rowden found populations of wild pheasants and learned about their behavior and movements by interviewing village residents. Rowden hopes to establish a long-term field conservation project on Bulwer's wattled pheasant. He has located a local student interested in studying the species for a graduate thesis.

The Bronx Zoo's first lesser adjutant stork chick was successfully reared by its parents this year. Other notable hatchlings included Montezuma oropendula, Congo

peafowl, and fairy bluebirds. The department received two pairs of green junglefowl that are unrelated to any of the birds in other United States collections. In exchange, WCS will send Indonesia a pair of scarlet macaws.

Curator Christine Sheppard wrote the regional collection plans for the Coraciiformes and the Galliformes/Tinamiformes Taxon Advisory Groups, both of which she co-chairs. These two plans were the first of their kind to be reviewed and approved by the AZA (American Zoo and Aquarium Association), which has mandated that regional collection plans be drawn up for all vertebrate taxa.

### Herpetology

Now 100 years old, the Department of Herpetology continues to maintain one of the world's finest collections of living reptiles and amphibians—particularly crocodilians, freshwater turtles, tortoises, giant



snakes, and monitor lizards. Among notable acquisitions during the year was a group of azure dart frog tadpoles from National Aquarium in Baltimore. These animals are offspring of azure dart frogs that were caught in the wild in a remote area of southeastern Surinam. An AZA Population Management Plan has been established for this spectacularly colored species. The adult frogs are bright blue and sprinkled with black dots. This species survives only in a few remaining patches of forest. The frogs' habitats are isolated from one another, making gene flow between frog populations nearly impossible. The department's Curatorial Intern, Kevin Zippel, is overseeing the azure dart frog captive-breeding program, which is designed to produce offspring for distribution and rearing to other zoos. This intern position was made possible by Mr. and Mrs. Andrew Sabin.

The department remodeled the first exhibit in the World of Reptiles from a South American rain forest into a Madagascar spiny desert. The design change reflects the department's longstanding interest in protecting the radiated tortoise and its native habitat, which is being altered by introduced plants and deliberately set fires. During the spring, Curator John Behler and Collections Manager William Holmstrom spent three weeks in Madagascar, conducting health and habitat assessments for wild radiated tortoises. The field studies and the new exhibit complement the radiated tortoise-breeding program at St. Catherines Wildlife Survival Center, which produced 13 young during the year.

Other significant hatchings and births included two dozen dwarf African clawed frogs, which are on display in Congo Gorilla Forest, Australian frilled dragons, and Merten's water and ornate Nile monitors. Samantha, our world-famous reticulated python, was carefully removed from her

habitat for a physical exam. When the keepers measured her, they were surprised to learn that she stretched more than 25 feet, surpassing her previous world-record length by a foot.

## ST. CATHERINES WILDLIFE SURVIVAL CENTER

The Wildlife Survival Center on St. Catherines Island was created in 1974 through an agreement between the St. Catherines Island Foundation and the Wildlife Conservation Society. For the past 25 years, the Center has focused its programs on rare and endangered species that do not do well in traditional zoo settings and on developing new techniques in animal management. From troops of ring-tailed lemurs ranging freely through the live oak canopy to wattled crane chicks foraging in large marshlands, the Center continues to meet the challenges of applied conservation.

This year, with generous support from the Edward John Noble Foundation, Center staff participated in two reintroduction projects: the release of captive-bred black and white ruffed lemurs into Betampona Reserve, in Madagascar, and the reintroduction of wattled cranes in South Africa.



Two black and white ruffed lemurs born at the Center were chosen by the Ruffed Lemur Species Survival Plan as release candidates pending completion of "training camp" at St. Catherines. The lemurs, Barney and Trisha, were released in the northern section of the island, and their behavior was monitored to determine their chances of survival in the forests of Madagascar. The pair adjusted quickly and in October was transferred to Madagascar. While in acclimation enclosures there, Barney and Trisha were paired with other animals and both bonded with their new partners. After an adjustment period, the four lemurs were released in their ancestral home.

In 1996, two juvenile wattled cranes hatched at the Center were transferred to South Africa to become founders in a program to bolster a declining wild popula-



A lesser adjutant stork (top left) hatched at the Bronx Zoo. Magellanic penguins (inset, top right). World of Reptiles staff (right) measure Samantha, the longest reticulated python on exhibit in the world.





tion. The Center participated with the Watted Crane SSP to again help those populations. Eggs collected from two pairs of cranes were sent to South Africa. The resulting offspring, along with animals from three other zoos, will continue the stabilization attempt for this vanishing species.

In May, the Center hosted a planning session for WCS and Foundation staff to

## NEW YORK AQUARIUM

The New York Aquarium continued its mission to raise public awareness about issues facing the ocean and its inhabitants by focusing on special exhibits, public events, and research. The newest animal exhibit, Stars and Stripes Forever, features sea stars, sea urchins, and sea cucumbers. It is designed to educate viewers about the biodi-

The beluga whale holding pools received a face-lift with the addition of two large windows that provide a panoramic view of these spectacular animals.

A northern fur seal pup, named Ursala, was born to the colony. The New York Aquarium is one of only five AZA institutions to exhibit northern fur seals. The event received national media attention, as did massage therapy for Nuka, the walrus.

The Aquarium created Water Walk in partnership with Bay

Ridge Parks and Waterfront Council and the New York City Department of Parks. This waterfront exhibit consists of a series of panels and metal artwork depicting local sea life and conservation issues. The first segment was placed on a section of guardrail along a heavily used pathway that runs along the Belt Parkway. The exhibit not only educates the public on the

## THE AQUARIUM RAISED VISITOR AWARENESS OF THE MARINE REALM

address the current conservation missions, and the steps to take to ensure future plans. Three new members joined the Center staff during the year: Elizabeth Hudson, Senior Zoologist, Ornithology, Shelly Angell, Veterinary Technician, and Jennifer Savage, Zoological Technician, bringing over 30 years of combined animal husbandry experience to the Wildlife Survival Center.

versity of the echinoderms. The more than 6,500 known species of echinoderms occur in a variety of colors, shapes, and sizes and live from the polar seas to the tropics.

The Aquatheater reopened with a larger and more spectacular pool for the dolphin and sea lion behavior demonstrations. Dramatic changes in landscaping and stage settings greatly enhance visitor experience.



types of fish that live in the area but is an engaging explanation of how people relate to the ocean, aquatic wildlife, and habitats.

### **Osborn Laboratories of Marine Sciences**

The single greatest impediment to conservation of the oceans is limited awareness of the critical importance of the marine realm to life on Earth. To remedy that situation, the Ocean Awareness Campaign was born and is led by OLMS Director Paul Boyle. With grants from the David and Lucile Packard Foundation and the Pew Charitable Trusts, the Campaign is conducting a nationwide survey to determine the awareness of ocean issues.

Andrew Baker joined the OLMS Coral Research Culture Laboratory to study the genetics of zooxanthellae, critically important algal cells that live within coral tissues. The staff of the newly refurbished microbiology and parasitology lab began studies on the biology, pathology, and chemotherapeutic treatment of monogenean parasites of fishes. State-of-the-art research microscopes and computerized image-analysis systems for use in these aquatic conservation studies were made possible by the New York City Council.

Sea Cliffs Supervisor Hans Walters began a project to determine methods for satellite-tagging sharks. This work is focusing on the sand tiger species, one of the depleted shark species that are protected by federal law. Many marine mammal species are stressed or threatened around the world. OLMS scientist Diana Reiss started a number of studies on the behavior and cognitive capabilities of bottlenose dolphins and other marine mammals. Reiss is helping to develop techniques for marine mammal conservation studies and to identify those species and habitats in most need of WCS attention.

**Visitors to the New York Aquarium (top left) saw stars this year with the opening of Stars and Stripes Forever, an exhibit designed to educate visitors about the diversity of sea stars (right) and other echinoderms.**

## **NEW YORK WILDLIFE CENTERS**

Wildlife Centers Director and WCS Vice President Richard Lattis was elected President of the American Zoo and Aquarium Association, which represents the best zoos and aquariums in North America and has more than 7,000 individual members. Eunice Casey joined the Conservation Centers staff as Project Assistant.

Denise McClean, Administrator of the WCS International Travel Program, designed a special Family Adventure tour for July 2000. It will feature a cruise around the Galápagos Islands led by a representative from the environmental education staff of the New York Aquarium. The Teachers' Safari will be led by Bronx Zoo Education Department staff, and teacher participants will receive credit for their safari. In addition, WCS experts from the Wildlife Centers are leading trips to Kenya, Belize, Argentina, Botswana, and Madagascar.

### **Central Park Wildlife Center**

Two exhibits were renovated in the Tropic Zone during the year. One of the displays is home to Asian mouse deer that were

transferred from the Bronx Zoo breeding program; the other is a family of cotton-top tamarins from Central Park Wildlife Center's off-exhibit propagation program. In addition, a flock of blue-gray tanagers was acquired for the Tropic Zone. These birds look like delightful jewels flitting about the rain forest.

In the sea lion demonstration script, the announcer urges zoo visitors to keep our beaches clean and to join WCS to help protect and save wildlife. The animal behavior enrichment program for mammals and birds has inspired a number of exhibit changes. A new "hot springs" for the snow monkeys was created. This addition simulates the mountain waters of the monkeys' native habitat in northern Japan. The Wildlife Center animals can be seen in late fall and winter soaking and bathing in the misty waters.

Central Park Wildlife Center Director Dan Wharton was appointed executive editor of the journal *Zoo Biology*.

In the Wildlife Gallery, the photographic images of WCS Advisor Elyssa Dickstein were featured. This exhibition focused on the wildlife of North America and Africa.









### Queens Wildlife Center

A male coyote that had been captured in Central Park was successfully integrated into the zoo's existing group. The coyote seems to get along well with the other three animals. The story of his capture made all the local and some national papers.

With the completion of a cold-weather holding area, the Center can keep its American alligators year-round. A new exhibit was opened featuring barred owls, and the Center started a propagation program for the thick-billed parrot. This species is the only remaining parrot that occurs naturally within the continental United States.

### Prospect Park Wildlife Center

A total of 244,026 visitors flocked to Prospect Park Wildlife Center during the year. They were drawn by a number of special events, such as Keeping Up With Keepers and by increased free programming.

A cotton-top tamarin was born. This was the culmination of an eight-month hormonal study of reproduction in this highly endangered primate. Other births and hatchings included a North American porcupine, parma wallabies, prairie dogs, Madagascan day geckos, bearded dragons, and poison dart frogs.

Director Lewis Greene was elected Vice Chair of the Tapir Taxon Advisory Group.

## WILDLIFE HEALTH SCIENCES

The Wildlife Health and Sciences Committee, chaired by Mrs. Ann Unterberg and co-chaired by Dr. Judith Sulzberger, provided vital support to the department. Fiberoptic endoscopes contributed by Olympus America, Inc. were used in diagnostic and therapeutic procedures, speeding up recovery time and enabling animals to return to their habitats quickly. Emerge Vision donated a thermography unit—non-invasive, handheld equipment that pinpoints areas of increased body heat, often an indicator of inflammation or infection. This technology increases the ability to diagnose illnesses earlier without having to immobilize animals.



Snow monkeys (left) at the Central Park Wildlife Center enjoy new "hot springs" that simulate their native mountains in northern Japan. Visitors to Central Park Wildlife Center can also see the rare Surinam azure dart frog (below). A llama at Queens Wildlife Center (above).

The Clinical, Pathology, and Field Veterinary departments used digital cameras to capture images that were instantly transmitted to experts for review. The Field Veterinary Program beamed information directly to the Health Center via satellite telephone. The case of Heiner, a Bronx Zoo rhinoceros, is an example of new electronic consultations. Following discovery that the rhino had injured its jaw, radiographs were taken of both the injured jaw and a normal jaw skeleton on loan from the American Museum of Natural History (with the aid of George Amato of the Science Resource Center). The images were captured with a digital camera and sent via the Internet to Dr. Paul Orsini, Consulting Veterinary Dentist at the University of Pennsylvania School of Veterinary Medicine. A teleconference between Orsini and WHS clinical veterinarians resulted in successful therapy, and Heiner's jaw problem was resolved.

The most significant event for Clinical Studies was transferring animals to Congo Gorilla Forest. Chief Veterinarian Robert Cook and staff planned the move with Wildlife Conservation Associates and Wildlife Health Consultants—in particular Drs. Brian Currie, Jim Grillo, and Laurie Gold-

stein. Sixteen gorillas were safely anesthetized under direction of Bronx Zoo Senior Veterinarian Bonnie Raphael, and each animal was medically evaluated, providing information on captive gorilla health for the zoo and wildlife veterinary community. The animals recovered quickly and uneventfully and adapted rapidly to their new environment.

Paul Calle, Senior Veterinarian for the Aquarium and the City Wildlife Centers, worked with veterinarians, technicians, and husbandry staff to cure a number of problems. At the Aquarium, an older female beluga whale developed signs of a uterine infection, which was successfully treated thanks to the dedicated intervention of laboratory technicians led by Kate McClave and the aquarium training staff. Uterine endoscopy was performed to both diagnose and treat the infection. A new medication was used to relieve anxiety in animals being introduced to new environments.



### Pathology

Work continued on a herpesvirus in pheasants. First described by department head Tracey McNamara, the virus caused mortalities at WCS and other zoological institutions. Supported by AZA Conservation En-

ject with faculty from the National Zoological Park, the University of São Paulo, Brazil, and two field biologists on the dietary iron requirements of callitrichids.

Assistant Pathologist Michael Linn expanded the digital-image capture center.

the WCS Nutrition Laboratory processes local food samples collected by field staff. Information from these samples will be gathered in a Wildlife Nutritional Information Resource Database, which has been supported by a Conservation Award from the WCS Species Survival Fund. The database will help manage dietary programs both in zoos and the field.

## HEALTH SERVICES BECOME EVER MORE IMPORTANT IN CONSERVATION

dowment Fund and WCS Species Survival Fund, Pathology and Ornithology departments are collaborating with a researcher at New York State College of Veterinary Medicine-Cornell University to develop a diagnostic test and preventive vaccine.

The department focused on iron storage disease in captive marmosets and tamarins. The results of this study generated great interest in the veterinary and conservation community. McNamara organized a pro-

Enhanced images can be transmitted from microscope to computer, attached to email files, and shared with colleagues.

Nicole Gottdenker completed her residency program, supported by Carolina N. Sidnam and Pamela Thye. Aleksandr Goldman joined the staff as histotechnician.

### Nutrition

In addition to working on animal diets at the New York City-based wildlife centers,

Volunteers and students, under Laboratory Supervisor Marianne Fitzpatrick and Program Assistant Marian Glick-Bauer, evaluated fat-soluble vitamins in free-ranging and captive piscivores and herbivores and looked at fruits consumed by hornbills and gorillas. Information from studies on gorillas is highlighted in the new Congo Gorilla Forest exhibit and will be incorporated into feeding programs.

The Zoo Nutrition Center serviced five clients through Associate Nutritionist Wendy Graffam. Zootrition dietary management software—destined to be the global standard for diet analysis and recordkeeping in zoos and aquariums—was completed and is being marketed around the world. Development of Zootrition was funded in part by a grant from the Institute of Museum and Library Services and will continue with a grant from the AZA Conservation Endowment Fund.

The department's work is generously supported by the Perkin Fund and The Marilyn M. Simpson Charitable Trust.

### Field Veterinary Program

The Field Veterinary Program, headed by William Karesh, grew dramatically with the additions of Assistant Field Veterinarian Sharon Deem, a veterinarian and PhD specialist in wildlife epidemiology and FVP Fellow Marcela Uhart, an Argentinian wildlife veterinarian. These additions were instituted to meet the great demand for veterinary support by field biologists and reflect the importance of population health assessments to wildlife conservation.

An initiative was launched in Mongolia to study the health of gazelles on the eastern steppes. This work was coordinated

**Chief Veterinarian  
Bob Cook**

**and Wildlife**

**Conservation**

**Associate George**

**Unis, a WCS**

**consultant in**

**orthopedics, begin**

**arthroscopic knee**

**surgery for lowland  
gorilla Dan.**

**Opposite page:**

**One of three snow  
leopard cubs born  
during the year at  
the Bronx Zoo.**

**Each one was  
weighed and  
evaluated by the  
Wildlife Health  
Sciences Clinical  
Services.**











with local authorities to yield critical information for creating species management plans. Training for Mongolian veterinarians and field biologists was an integral component.

South American projects expanded into the Bolivian Chaco and the Ecuadorian Andes. Uhart's work on elephant seal health in Patagonia continued into its second season.

In Africa, protection strategies were bolstered by radio-telemetry studies of forest elephants in Congo and mandrills and forest buffalo in Gabon. Data gathered on forest elephant ranging patterns resulted in safe handling. Health studies were started for gorillas in Central African Republic and Republic of the Congo to uncover potential health threats in areas where human-gorilla contact is increasing. By training local community and government authorities in preventive medicine, we can help ensure the protection of this endangered species.

The field vet program was generously supported by gifts from Dr. Judith P. Sulzberger, Virginia and Warren Schwerin,



Mr. and Mrs. Brian J. Heidtke, Mr. and Mrs. David Schiff, The Regina Bauer Frankenberg Foundation, Peter Manigault, Mr. and Mrs. Thomas Unterberg, Caroline N. Sidnam, and Pamela Thye.

## SCIENCE RESOURCE CENTER

Department Director George Amato continued to expand conservation research and training programs in genetics, molecular ecology, population biology, and demography. These efforts, combined with graduate student training, created links between

WCS international and facilities-based programs. Predoctoral Research Associate Mary Egan collaborated with Alan Rabinowitz and George Schaller, of International Programs, on the discoveries of two new species of barking deer and re-discovery of a third deer species in remote tropical forests of Southeast Asia.

Predoctoral Research Associate Howard Rosenbaum began his fourth year studying the humpback whales that calve and breed in Antongil Bay, Madagascar. Rosenbaum completed his PhD at Yale University, where he received an award for distinguished dissertation research.

Supervising Librarian and Archivist Steven Johnson received a significant grant from the State of New York for the preservation of important archival records.

**Science Resource Center scientist Howard Rosenbaum (above) studies humpback whales (top) in Madagascar. The WCS publicity campaign (right) for Congo Gorilla Forest was the most successful in Society history.**



## MARKETING AND COMMUNICATIONS

The WCS public relations campaign heralding the opening of Congo Gorilla Forest was among the most successful in the Bronx Zoo's 100-year history. The exhibit appeared twice on the front page of *The New York Times*, as well as in *The Wall Street Journal*, *TIME*, and *New York* magazine. It was also carried on television and radio stations nationwide, including the TODAY Show, CBS This Morning, and Martha Stewart Living. A one-hour, prime-time television special produced by Natural History New Zealand will air on the Discovery Channel in late fall 1999.

During the year, the department launched the first marketing campaign aimed at building WCS name recognition and communicating the characteristics that make the Society unique among conservation organizations. Early results from print advertising, national radio programming, an infomercial on the PBS network, and other elements are extremely positive. A survey showed that consumers in the greater New York area are now twice as likely to be aware of WCS and its work.

Bronx Zoo advertising won its second EFFIE Award in three years. Given by the advertising and marketing industry, the Effies assess not only creative success but also awareness and sales goals.

Sponsorship grew to almost \$1 million in cash, in-kind products, and promotional considerations. Jaguar Cars, a division of the Ford Motor Company, committed to a five-year, \$1 million sponsorship of WCS conservation programs to save wild jaguars. The work of WCS will be featured in Jaguar advertising and at dealerships nationwide. State Farm Insur-

ance gave \$100,000 in support of "Celebration Congo!," a summer weekend event series at the Bronx Zoo.

WCS web site visitation expanded from 1,800 visits a day to more than 4,000. For the opening of Congo Gorilla Forest, the web team created a virtual tour of the exhibit, which was well received by the on-line audience and the web-design industry.

The New York Aquarium garnered more than 700 media placements in regional, national, and overseas markets, and it hosted more than 30 corporate and private functions. Among the media highlights at the wildlife centers was a tenth birthday show at Central Park, hosted by Katie Couric of NBC's TODAY Show.

### WILDLIFE CONSERVATION® Magazine

The first issue of the year—a special August issue called Consider the Sea—was devoted to the problems facing our oceans. The subject reflected the fact that the United Nations had designated 1998 as the Year of the Ocean and the WCS International Conservation program's new focus

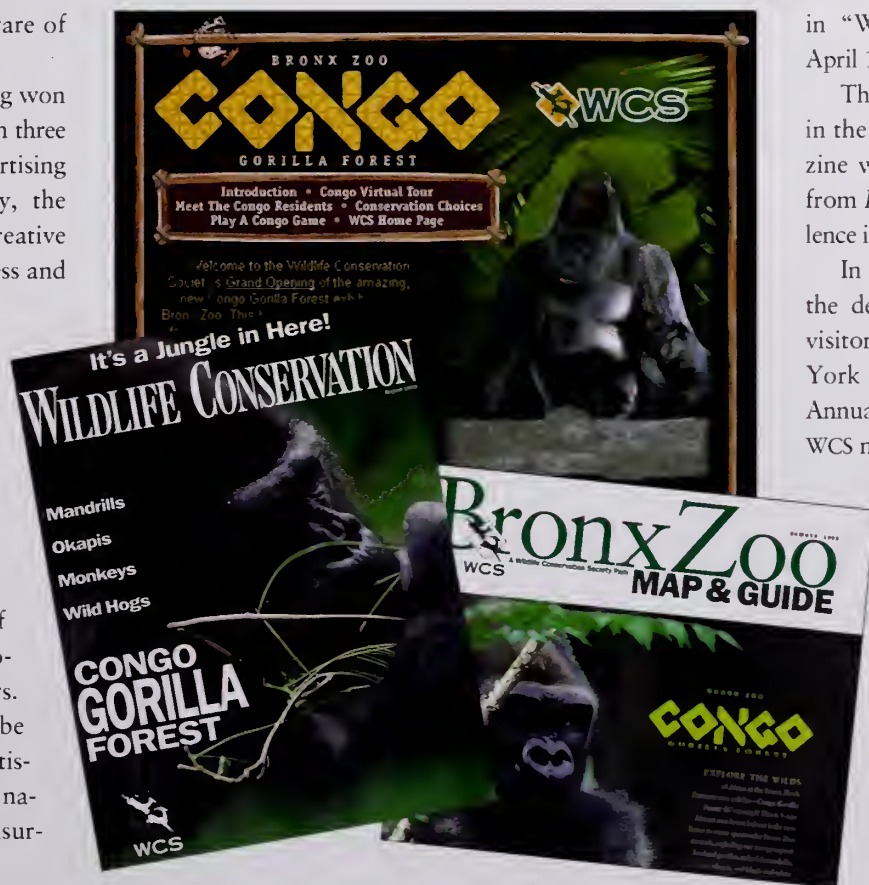
on landscape, or in this case seascape, species. As Ellen Pikitch, WCS Director of Marine Programs, pointed out in her introduction to the issue, people think of the ocean as vast and inexhaustible, immune to human activity. But we're catching many of the vital marine species faster than they can reproduce. One of the articles in that issue, "The Big Green Seafood Machine," by Archie Carr III, Regional Coordinator for the Caribbean and Mesoamerican program, described WCS's role in trying to conserve the nesting and grazing areas for green turtles, which migrate from the open ocean to Central America's Miskito Coast. Tim McClanahan, WCS associate conservation zoologist, wrote "In Living Coral Color"—about his studies of the environmental and manmade pressures on coral reefs in tropical waters around the world.

Other hot topics included a trend toward dismantling some of the United States' most destructive large dams, as C.J. Chivers explained in his February 1999 article, "Why Is This Dam Here?" And Jay Stuller gave us another perspective on manmade water impoundments in "We Be Jammin'" in the April 1999 issue.

The Table of Contents page in the April issue of the magazine won a gold Ozzie award from *Folio* magazine for Excellence in Magazine Design.

In addition to the magazine, the department produced the visitor maps to the five New York City-based facilities, the Annual Report, and a variety of WCS newsletters, brochures, and

publications. The department continued to expand its services and improve its products to educate the public about wildlife conservation and to disseminate the WCS message in a compelling and visually appealing manner.



# WildlifeEducation

WCS is a leader in the education of future generations of conservationists, environmentalists, and scientists who care about the world of wildlife and wilderness.









In 1985, Howard Gardner, a professor of education at Harvard Graduate

School of Education and the author of a number of well-received books, revolutionized classroom teaching and the assessment of children with his theory of multiple types of intelligence. At that time, he identified seven types of intelligence: linguistic, logical-mathematical, spatial, bodily kinesthetic, musical, interpersonal, and intrapersonal. Recently, Gardner added an eighth, which he calls the naturalist intelligence.

According to Gardner, the naturalist intelligence refers to the ability to discriminate among living things, to understand the nature of different species, to recognize patterns in the natural world, and to master the science of taxonomy. WCS education departments are leading the way in ensuring that this vital aspect of the human mind is recognized and nurtured in people of all ages all around the world.

From urban classrooms in New York City to rural schools in Papua New Guinea, WCS education department programs and instructors work with local teachers and youngsters to increase their sensitivities to nature. The staff also strives to improve the teachers' and students' abilities to discriminate among Earth's many life forms, to help them understand the value of this natural diversity, and to assist them in learning new techniques and to use inquiry, pattern-recognition, and other critical skills relating to the sciences. By fostering Gardner's natural intelligence, WCS seeks to enlarge the population of people who value the natural world, who understand the sciences, and who are committed to the conservation of wildlife and wilderness.

## BRONX ZOO EDUCATION

With the opening of Congo Gorilla Forest, the Bronx Zoo Education Department ushered in a new era in programs at the Flaherty Learning Center. Two modern, spacious classrooms, The Charles Hayden Foundation Treetops Lab and The Bodman Foundation Congo Lab, offer opportunities for



instructors to bring program participants face to face with the creatures they are learning about. WCS educators created innovative materials and exciting programs for this new learning center. A storybook for young children, *The Wandering Gorilla*, classroom kits and song cassettes, and the

Congo Adventure Kit will help teachers and parents turn visits to the exhibit into an exciting educational experience. The Homeland Foundation increased its endowment to support education programs in Congo.

Meanwhile, in Papua New Guinea, the international education program reached from the steamy, forested coast into the cool, mountainous highlands. In April, the educators led teacher-training workshops, four in Morobe Province and two in Eastern Highlands. Through 265 teachers we have trained, WCS curricula have been disseminated to more than 12,500 students. Also attending this year's workshops was staff of PNG's national education ministry, which is preparing PNG's first environmental education curricula. Rachel Konaka, Program Officer at the Ministry of Education, called WCS workshops and curricula a model for the nation.

In the second year of its five-year partnership with China's Ministry of Education,

**The opening of Congo Gorilla Forest at the Bronx Zoo created new opportunities for WCS educators to bring youngsters (top) face to face with the wild species (right, a colobus monkey) that they learn about in WCS programs and materials (inset).**











WCS has trained 164 teachers and reached over 8,400 students. A grant from The Starr Foundation will allow the department to bring 22 master teachers from China to the Bronx Zoo for training. These Starr Fellows will help WCS relinquish primary responsibility for training to Chinese educators.

The Bronx Zoo Education Department also hosted professional internships by zoo educators from Melbourne, Australia, and Szeged, Hungary. The national program staff

once again traveled the globe, training K-12 teachers to use its award-winning life-science curricula. Locally, they trained 30 special education teachers from Bronx District 75 who work with emotionally and physically disabled students. National program staff also traveled to a number of states, including California, Texas, and Kentucky, to give workshops to members of each state's Science Teachers' Association. Workshops were also given in numerous host institutions, such as the Tulsa Zoo in Oklahoma, New England Aquarium in Massachusetts, and the Game Preserve in Pennsylvania. With support from the CZ Foundation, national program staff trained 1,307 new teachers; through peer-training workshops, those teachers reached thousands more.

Zoo education benefits from advances in technology. Thanks to distance-learning technology, the national program staff was able to "travel" without leaving the Bronx. Trainers in the Africa Lab classroom at the Bronx Zoo used this interactive new medium to train teachers in classrooms in Long Island and Buffalo, New York. The classes consisted of curriculum-related hands-on activities, computer presentations, interactive dialogue, and animal demonstrations.

The Department launched groundbreaking programs this year. Project PEERS (Promoting Environmental Education in Rural

Schools), a professional development program for elementary school educators affiliated with the rural Watertown-Jefferson Lewis BOCES of New York State, was made possible by EPA funding. Thirty educators were taught inquiry-based approaches to environmental science, enabling them to utilize nature centers, parks, and bird sanctuaries as effective teaching resources.

tional cadre of educators, the department's internship program trained 22 graduate and undergraduate teaching interns during the year. WCS currently has 15 full-time staff who are alumnae of the Bronx Zoo educators' internship program.

In March, the department received an Impact Award from the Girl Scout Council of Greater New York given to those who

## WCS EDUCATION LAUNCHED SEVERAL NEW GROUNDBREAKING PROGRAMS

The Bronx Zoo Education Department was awarded a large grant from National Science Foundation to launch Project TRIPS (Teaching Revitalized through Informal Programs in Science), a revolutionary program designed to advance classroom science education reform. In this program's first year, Bronx Zoo educators trained 40 teachers and administrators from 12 highly regarded institutions of informal science, including the Brookfield Zoo in Chicago, the San Diego Zoo, and the Carnegie Museum of Natural History in Pittsburgh.

In addition to its international and na-

have made a significant and positive impact on Girl Scouting in New York City. Annette Berkovits, WCS Vice-President for education and Chauncey Stillman Chair in Wildlife Education, accepted the award in recognition of the Zoo's Wildlife Science Careers program, which promotes girls' interest and achievement in science by introducing them to the diverse array of careers involved in wildlife conservation. This program is funded by a multi-year grant from the National Science Foundation. Since June 1998, 14 outstanding young women have completed Girl Scout internships at WCS facilities.

**Technological advances allowed the Bronx Zoo Education Department to "travel" to Africa without leaving New York: In Africa Lab, youngsters learned about African wildlife (left, a crowned crane) and culture (right).**







One of the Department's newest programs for the local community, After School Adventures in Wildlife Science, was funded by a two-year grant from the Institute of Museum and Library Services. The program allows WCS to work with Homes for the Homeless, a temporary residence for families in the Bronx. This collaboration brought *Pablo Python Looks at Animals* and the Habitat Ecology Learning Program (HELP) to five- to 12-year-olds. Wildlife Biology, an afterschool program for Bronx high school students, expanded with support from The Charles Hayden Foundation.

Project IMAGINE (Innovative Model for the Advancement of the Gifted through Inquiry in Nature and the Environment) was made possible by the Javits Program of the U.S. Department of Education. It focuses on meeting the needs of disadvantaged gifted and talented students and their teachers by demonstrating how informal science institutions can be used as living laboratories for instructional purposes, supplementing the scarce resources of inner-city schools.

In the SPARKS (Supporting Parents in Advocacy, Reform and Knowledge in Science) Fair, educational games and activities, such as Wildlife Jeopardy, the Scavenger Hunt, Baby Balancing Act, and Animal Crafts, introduced the importance of science literacy and parental involvement in science learning to the general public. An exit survey revealed that two-thirds of parents were unaware of the National Science Education

Standards prior to attending the fair. After the fair, an overwhelming 84 percent believed they had a better understanding of the standards.

The popularity of the Bronx Zoo's general audience programs, especially Animal Kingdom Camp, is so high that demand is almost twice as great as the space available. Among the highlights of the year were the sold-out sneak previews of Congo Gorilla Forest, as well as the two early morning programs for families.

The 39,632 adults, families, children, and students who enrolled in the Bronx Zoo Education Department's on-site courses can better appreciate the animal kingdom and more fully understand the importance of conservation. The 467,603 children who visited the zoo with school groups also benefited from their enriching experience.

For the opening of Congo Gorilla Forest, the Friends of the Zoo docents educated themselves so that they could provide visitors with information about gorillas, okapis, and their spectacular habitats. Seven FOZ docents per hour worked in the new exhibit, many helping visitors in the Conservation Choices Pavilion choose the conservation project to receive their admission dollars. The FOZ Training Course was revised to give greater emphasis on natural habitats and the critical role of habitat protection in species survival. In addition, volunteers gave 592 tours to 18,321 students and other visitors, spending 5,045 hours at

Biofact Carts, 6,346 hours at mini-talks at exhibits. The FOZ also answered letters and e-mail from schoolchildren, worked as mentors to new volunteers, and assisted the Department with weekend children's courses.

## NEW YORK AQUARIUM EDUCATION

More than 26,900 children enrolled in 950 programs of the Aquarium Education Department. Seven creative workshops were held at the aquarium and in the field for three classes of fifth-graders from P.S. 277 in Brooklyn. The youngsters learned how to monitor water quality in a marsh at Marine Park and how to germinate marsh plants. The plants were later transferred to the Discovery Cove marsh at the Aquarium.

In the second year of the Upriver/Downriver program, Aquarium staff and a class of Brooklyn fourth-graders traveled to Dover Plains, New York. Field instructor Kristen Deckert took the city children into the Great Swamp to learn about winter animal tracking and survival techniques.

The Marine Teens attended the annual Youth Can Conference at the American Museum of Natural History's Hall of Oceans. They led more than 200 high-school students in a rendition of "Don't Throw Your Trash on the Beach, There's a Garbage Can Within Your Reach."

More than 800 teachers participated in workshops held at the Aquarium, on beaches and vessels, and in their classrooms. These educators reach more than 28,000 students each year.

Through a grant from New York Assemblyman Joseph Lentol, 1,020 students from Brooklyn community school districts 13 and 14 participated in organized programs at the Aquarium. In addition, 20

**In a cooperative project with the WCS International Program's Metropolitan Conservation Alliance, Aquarium Education created a quilt (right, with Aquarium Education Director Ellie Friese and New York City Council President Peter Vallone) depicting native animals (top, a spotted turtle).**



teenagers from the Fort Green youth group attended the education sleepover. Two thousand WCS members took part in 86 family programs, and the Aquaravan took biofacts, art activities, and a costumed instructor to 39 nursing homes, 31 hospitals, 38 libraries, and 32 schools. The Aquarium education outreach team provided activities at 25 off-site events for more than 10,000 adults and children.

The award for outstanding mentor of the year from the High School for Environmental Studies went to Susan Rolon, Aquarium Docent Coordinator. Under her leadership, 250 docents (mostly high school students) dedicated over 30,000 hours of service.

## CENTRAL PARK WILDLIFE CENTER EDUCATION

The year marked the tenth anniversary for the Wildlife Center. The Education Department has grown from a traditional offering of formal classes for members and school groups to providing innovative and extensive education opportunities for zoo visitors.

This year, a new idea in theater was introduced: The Traveling Troupe. Two or more actors roam the zoo performing short skits and songs designed to give the audience "One Little Big-City Thing" that they can do to help save wildlife. One of the shows, Conservation Connections, shows how a New Yorker's recycling efforts can

affect wildlife in the rain forests of Africa.

The Wildlife Theater in the main zoo reached more than 540,000 visitors with messages of concern for wildlife issues. More than 100 dedicated volunteer Wildlife Guides contributed 12,800 hours reaching over 137,000 people with Wildlife Chats and guided tours. School and workshops presentations reached over 4,500 participants with conservation education. All department classes met city, state, and national standards for science education.

In the Tisch Children's Zoo, costumed characters continued to give children an opportunity to meet friendly renditions of the turtles and butterflies that live in this magi-









cal place. Over 4,880 exciting children's shows were presented at the Daniel Cowin Acorn Theater, reaching over 165,000 young zoo visitors. A visitor survey conducted during the busy summer season showed that zoo visitors usually attended more than one show and stayed more than half an hour longer in the zoo just to learn about the animals through children's theater. Overwhelmingly, visitors reported that a trip to the Tisch Children's Zoo was educational and enhanced their children's excitement about the world of animals.

Adult education programming included the "Wine and Cheese" evening lectures by WCS wildlife experts. Ellen Dierenfeld, head of Nutrition, spoke about her ongoing research at St. Catherines Island Wildlife Survival Center to determine the nutritional needs of animals from primates to parrots. Senior Veterinarian Paul Calle spoke about the challenges of providing medical care for more than 10,000 animals at six facilities.

As we enter a new millennium, the education department continues to build on its strong foundation. New ways are being explored to create a more exciting zoo visit, that actively involves visitors in the conservation of wildlife.

## PROSPECT PARK WILDLIFE CENTER EDUCATION

Prospect Park dramatically increased participation in its school programs, family workshops, and birthday parties. This year, 10,338 children took part in 313 education programs. Popular new titles included *Amazing Arthropods*, *Got Any Sense?*, and *Secrets of Survival*. The department added a Sea Lion Celebration to the birthday party roster. Youngsters learn how these animals are trained to perform various behaviors.

**WCS docents contribute thousands of hours of their time to help educate the public at our wildlife parks about wild animals (left, a California sea lion) and wild habitats (right, a Central Park docent explains how the Wildlife Center's polar bears and penguins Chill Out during the summer).**

The wildlife center collaborated on a summer camp with the Brooklyn Botanical Garden, Brooklyn Museum of Art, Brooklyn Children's Museum, and the Prospect Park Alliance. At Prospect Park, the youngsters learned about aquatic animals, water quality, and wetlands habitat conservation. The department also launched a new outreach program to Brooklyn hospitals and nursing homes.

Volunteers and interns contributed more than 12,700 hours to present sea lion talks, staff discovery carts, and help with special events. Senior Instructor Dominiqu Shimizu and Volunteer Coordinator Dana Dalpra joined the department.

## QUEENS WILDLIFE CENTER EDUCATION

The year started off with a new, improved summer program. In an effort to accommodate more participants, the number of sessions was doubled. Participants explored out of doors with behind the scenes tours, hands-on animal investigations, and other wonderful activities. They had the opportunity to meet with keepers and learn how the wildlife center's animals are cared for.

The department continued to touch the minds of students and teachers throughout Queens and the other boroughs with a record enrollment of more than 9,000 students in more than 250 school programs. Youngsters discovered the wonders of native wildlife through such programs as *Encountering Animals*, *North American Wildlife*, and *Disappearing Wildlife*. Regional teachers continued to learn more about rare and endangered species and conservation education through introductory tours and school district meetings. The Suitcase for Survival loan programs reached several hundred students through teacher participation in workshops that were held at the Queens Wildlife Center.


In coordination with the International Program's Metropolitan Conservation Alliance, a trip was made to the Great Swamp, in New York's Dutchess County. Participants met with local scientists and naturalists to gain a better understanding of this wetland habitat and how WCS is participating in conservation efforts there. Other organized programs were held with the Hall of Science and the Queens Botanical Gardens. In addition, Jennifer Sparke joined the department as an instructor.











# Wildlife**Conservation**

WCS promotes an understanding and an appreciation for nature and works to integrate the needs of people and animals.



For more than 100 years, WCS's Wildlife Conservation program has

focused its efforts on helping to save wildlife and wild habitats around the globe. As the new millennium approaches, WCS has looked long and hard at the conservation challenges that lie ahead. To meet those challenges, the international division has sharpened its focus to those species whose survival depends on the conservation and management of large areas—areas that are

bigger than parks, areas where there are many ecosystems and where humans interact with wildlife—in other words, landscapes. Landscape (or seascape) species may be large, such as elephants, tigers, and eagles. They often range widely and occur at low densities. They may be migratory, like humpback whales, breeding in one place and feeding in another. Landscape species may gather in big groups and depend on seasonal, widely dispersed foods.

Few parks or reserves are big enough or encompass enough life zones to protect landscape species. Many of these animals are cultural icons and indicators of current and future problems. Their conservation is a cost-effective way to protect the richness of nature. Also, landscape species often greatly affect the structure of the biological and human communities in which they live.

To implement this approach, WCS received a major challenge grant from the Robert W. Wilson Foundation. Life Trustee Joan O.L. Tweedy gave an extraordi-

nary gift to create the Joan O.L. Tweedy Chair in Conservation Strategy, held by the leader of WCS's international conservation program, who will spearhead the process. The Landscape Ecology program, under Eric Sanderson and supported by The Prospect Hill Foundation, expanded its Geographic Information Systems (GIS) to provide WCS scientists with landscape analysis tools and expertise.

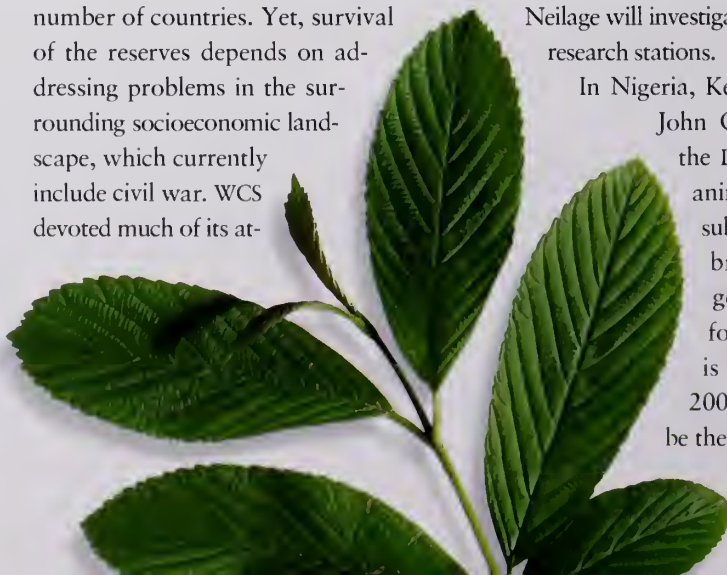
## AFRICA PROGRAM

One of the more charismatic landscape species in Central Africa is the gorilla. This large primate is protected by parks in a number of countries. Yet, survival of the reserves depends on addressing problems in the surrounding socioeconomic landscape, which currently include civil war. WCS devoted much of its at-

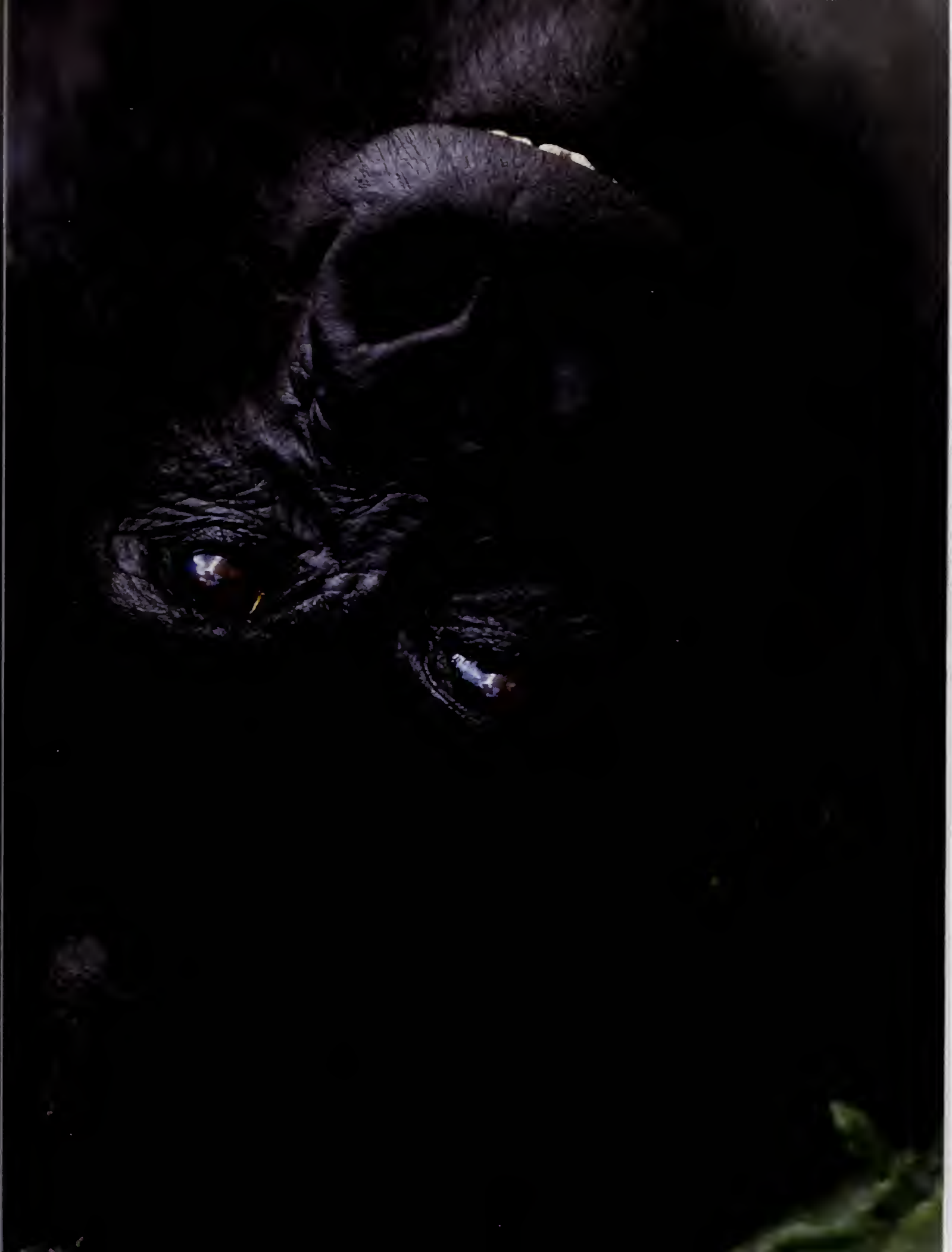
tention to gorillas this year, with the grand opening of the Bronx Zoo's Congo Gorilla Forest. A goal of this display is to generate funding for WCS projects in African rain forests. After viewing gorillas in the spacious, naturalistic exhibits, visitors are encouraged to direct their entry fees to conservation projects that include monitoring western lowland gorillas in Congo Republic's Nouabalé-Ndoki National Park. In Uganda's Bwindi Impenetrable National Park, Alastair McNeilage assumed directorship of the Institute for Tropical Forest Conservation. He and a Ugandan scientist are studying the impacts of tourism on mountain gorillas. With funding from USAID and WWF, McNeilage will investigate funding models for research stations.

In Nigeria, Kelley McFarland and John Oates have analyzed the DNA of gorillas. The animals could be a new subspecies, which would bring the number of gorilla subspecies to four. This population is estimated at 100 to 200 animals, so it would be the most endangered gorilla subspecies.

**Africa Program director Amy Vedder and Omar Ilambu (above) look for signs of mountain gorillas (opposite). Pages 42-43: The Jaguar is the focus of a five-year program. Inset: A plant featured in Congo Gorilla Forest.**









Mandrills are also featured in the Bronx Zoo's Congo exhibit. In Gabon, Kate Abernethy and Lee White have been radio-tracking a group of mandrills, with assistance from WCS Field Veterinarian Billy Karesh and support from Edith and John Newberry and the Derald H. Ruttenberg Foundation. Four collared mandrills stayed together most of the year in a group numbering about 750, and covered over 40 square miles, sometimes moving more than six miles in a day. Thus, to protect mandrills, it will be necessary to protect big areas of forest. Abernethy and White also discovered a social organization unknown in any other primate. Male mandrills come into the group during the breeding season in what is best described as a moving lek (assembly area where animals, notably birds, engage in display and courtship behavior). From November to May, the mandrills leave, presumably becoming solitary.

Civil war flared up again in Democratic



Republic of Congo and, at times, in Congo Republic, but WCS continues its activities: Congolese scientists in the Okapi Wildlife Reserve, with support from the R.W. Johnson 1962 Charitable Trust, are monitoring the impacts of the fighting on wildlife, particularly elephants (with added support from U.S. Fish and Wildlife Service). Assisted by Reserve Warden Geoff Mapilanga, WCS staff are educating the new authorities and military officers about the importance of the reserve. Farther south, the situation in Kahuzi Biega National Park was not good.

It is estimated that many gorillas and elephants have been killed because of the insecurity. WCS, aided by the Beinecke Scholarship, arranged for Congolese biologist Omari Ilambu to study for a Masters degree at Yale University during the war. In Congo Republic, WCS works with logging company CIB-Feldmeyer along the border of Nouabalé-Ndoki National Park to reduce hunting of apes, elephants, and bongos on the logging concession. This will create a buffer zone for landscape species.

WCS made the first survey of Rwanda's Nyungwe Forest Reserve with support of Congolese botanists. Nyungwe is the largest afromontane forest and has many birds and mammals with limited distributions. The survey will help determine the richest sites for trees, birds, and mammals, and a management plan will be developed along with ORTPN, the national parks service.

Wildlife and socioeconomic surveys are being done in Banyang-Mbo Sanctuary in



western Cameroon by David Hoyle and Roger Fotso to identify villages that claim some ownership of the reserve. This sanctuary is unique in Cameroon because it protects wildlife and the local people can make some use of it, including hunting. We hope to establish communal hunting laws to maintain wildlife populations.

In Uganda, Andrew Plumptre, with the Jane Goodall Institute, trained field rangers taking part in a survey of chimpanzee populations and other large mammals in Albertine rift forests. The resulting information will ultimately be used to put together a national management plan for chimpanzees.

In addition to support from hundreds of thousands of visitors to Congo Gorilla Forest, these efforts received generous support from Glenn Close and Mrs. Bettina F. Close and Mr. and Mrs. Bradley Goldberg.

In accord with the landscape approach, WCS is monitoring large mammals over large areas and the ways people and animals can coexist in regions adjacent to protected areas. Following a decision by CITES (Convention on International Trade in Endangered Species of Fauna and Flora) to allow a one-time sale of stockpiled elephant ivory, WCS was asked to help establish an elephant monitoring program throughout the forests of Central Africa—an effort led by John Hart. With support from Joan and Joseph Cullman, Charles Foley continued his work in Tanzania on the effects of poaching on elephant herds and the importance of migration corridors for elephants in the Tarangire National Park ecosystem. Foley and David Moyer ran a training workshop for national park ecologists in Tanzania, with support from the John D. and Catherine T. MacArthur Foundation.

In the savannas of Kenya, Laurence Frank studies how predators and pastoralists can coexist on lands outside current protected areas, which do not support viable populations of predators. Sarah Durant has been looking at cheetah populations in and around Serengeti National Park. There, adjacent woodlands and possibly pastoral lands seem to be important for cheetahs because the lion and hyena populations are

smaller and predation of cheetah cubs is less. The ADMADE program in Zambia, established by Dale Lewis, works with communities and sport-hunting businesses to help generate revenues for the community. The revenues support employment of game scouts trained at the Nyamaluma Institute to monitor animal populations in game management areas around national parks. Animals appear to be increasing on lands around national parks.

In 1999, WCS took over management of Masoala National Park in northern Madagascar. Kathryn Hunter and country coordinator Matthew Hatchwell are planning management strategies for this, the largest forest park in the country. Nearby Antongil Bay, used by humpback whales as a summer breeding ground, is the site of Howard Rosenbaum and Yvette Razafindrakoto's humpback census and study of breeding behavior in collaboration with the American Museum of Natural History. Both projects have been building up a team of trained Malagasy biologists carrying out their own research projects with support from Generoso Pope Foundation and Small Grants program for Africa and Madagascar.

## ASIA PROGRAM

WCS Indonesia country coordinators Margaret Kinnaird and Tim O'Brien and their staff of Indonesian scientists started a study on the ecology of Sumatran elephants and resolution of elephant-human conflicts in southern Sumatra. In addition, work continued on fruiting patterns at Bukit Barisan Selatan National Park, behavioral ecology of siamangs and hornbills, and effects of fire on lowland rain forests. A radio-telemetry study of the citron-crested cockatoo began on Sumba. The Indonesia program is supported by generous contributions from The Disney Corporation, National Fish and Wildlife Foundation/Exxon Save the Tiger Fund, and U.S. Fish and Wildlife Service. Edith and John Newberry, Stewart Metz, Franziska Vogel, and the World Parrot Trust provide critical financial support and endless enthusiasm.

In Sulawesi, with support from Natural Resources Management program (USAID), Margot Marsh Biodiversity Foundation, and St. Louis and Los Angeles zoos, Rob Lee coordinated a project to assess and monitor protected areas, build scientific capacity of local NGOs and the Forestry Department, institute policies for protected areas and build community awareness. Lee also oversees a World Bank-funded training program for forest department officials at Kerinci Seblat National Park, Sumatra. Former Research Fellow Christine Colon was hired as co-ordinator of the program.

Carel van Schaik of Duke University continued his work to conserve orangutans and their habitat in Gunung Leuser National Park, Sumatra. And Nancy Drilling collected data on the biology, ecology, and behavior of the rare white-winged duck in

**In southeast Asia, Antony Lynam (below) trained local park staff to survey tigers (top left) and carried out camera-trap monitoring of tigers and their prey (bottom left).**





Sumatra's Way Kambas National Park.

Despite its economic woes, North Korea is making strides to conserve its natural resources. In cooperation with UNDP and the North Korea government, WCS carried out a biological survey of the Myohyang Mountains—the preliminary step in an effort to establish the first internationally recognized national park in that country. WCS also moved ahead, with members of the Russian Academy of Sciences, Far Eastern Branch, Institute of Geography, and its analogous Institute of Geography, to see if Amur tigers still exist in North Korea.

Dale Miquelle and Dimitri Pikunov found no good evidence that tigers persist in South Korea. In northern China, Miquelle and Endi Zhang conducted a second tiger survey. In the Russian Far East, Miquelle and the Hornocker Wildlife Institute, our



partner in that area, supervised 15 projects to conserve the remaining habitats of several rare large carnivores and a host of endangered animals and plants in northeast Asia. New information from China and North Korea suggest that populations of tigers and leopards in Russia may be connected to suitable habitat across international boundaries, and new contacts present an opportunity to manage this metapopulation. WCS's comprehensive tiger conservation program continues to benefit from a major matching grant from WCS Advisor Gary Fink.

The year was one of the warmest on record, and large-scale coral bleaching and mortality were reported in the Indian Ocean and elsewhere. Surveys in the Maldives show that more than 75 percent of the corals were affected by the bleaching, and coral mortality was very high.

David Bickford completed his two-year study of frogs on Crater Mountain in Papua New Guinea (PNG). He established a team of trained local observers to continue monitoring while he undertakes laboratory studies at the University of Queensland. Debra Wright and Andy Mack became country coordinators and the WCS program in PNG works closely with the Research and Conservation Foundation of PNG, a local NGO, with support from a MacArthur Foundation grant and the Christensen Fund.

In Thailand, WCS's Wildlife Field Research and Training Program was formalized with a Memorandum of Understanding with the Royal Forest Department. This landmark agreement provides for a three-year training program for forestry and wildlife staff. Following the success of tiger survey training in Myanmar, Antony Lynam conducted a similar program for Thai and Cambodian government staff in Khao Yai





National Park and assessed tigers in Cambodia's Virachey National Park. These surveys and others in areas with presumably healthy populations revealed that tigers are either absent or at low density. Forests on Thailand's southern border, however, contain important populations of tigers and other large mammals, including that country's last population of Sumatran rhinos.

In India, Ullas Karanth and colleagues, with support from the National Fish and Wildlife Foundation/Save the Tiger Fund, continue to implement the Karnataka Tiger Conservation Project—a combination of anti-poaching training, staff support, education, and research to ensure protection of tigers and their habitat in three reserves. Karanth and his staff completed the first line-transect survey of large mammals in Bandipur Wildlife Sanctuary, conducted camera-trap surveys in Ranthambhore Tiger Reserve in Rajasthan and in Sundarbans Tiger Reserve in the state of Bengal.

In Malaysia, Elizabeth Bennett continued to work with the Sarawak government to implement the Master Plan for Wildlife through enforcement and education programs for the new wildlife trade ban. Almost no wild meat or wildlife trophies are openly for sale in any town in Sarawak. Many seizures have been made and several violators have been apprehended. With support from The Walt Disney Company Foundation, Bennett oversees our Malaysia projects, including long-term research on the effects of fire on wildlife by Jephthe Somput, a study of the impacts of logging and hunting on wildlife populations in Upper Baram, and research on the ecology and conservation of fruit bats by Melvin Gumal. Michael Meredith's two-year assignment as Training Coordinator within the Wildlife Master Plan Implementation Unit is to raise professional standards in National Parks and Wildlife Division of the Sarawak Forest Department, to establish training capability, and to monitor wildlife in the state. In Peninsular Malaysia, Ruth Laidlaw surveyed tiger populations with the Malaysian Department of Wildlife and National Park.

WCS continues to work with the Myan-

mar Forest Department staff to preserve the nation's magnificent forests and wildlife. WCS coordinator U Saw Tun Khaing and training officer U Than Myint provided basic training to the Wildlife and Sanctuary Division. Little is known about the wildlife, habitats, threats, and local management capacity of protected areas in Myanmar. To effectively manage existing and newly created protected areas and prioritize conservation needs, WCS is assessing the biological value and conservation potential of parks in this system under the leadership of Alan Rabinowitz and with support from the Cline Foundation Fund. The tiger is a priority, since the country may still contain healthy populations of that great cat. With support from the National Fish and Wildlife Foundation/Save the Tiger Fund, the WCS Myanmar program and WCS Indochina Tiger Program Coordinator Antony Lynam conducted a Tiger Survey Training Workshop for government and protected areas staff in Alaundaw Kathapa National Park, which led to the approval of the National Tiger Action Plan, also developed by WCS. Funds from the MacArthur Foundation provided small grants to university students and basic training to the Wildlife and Sanctuary Division of the Forest Department.

The WCS Lao program underwent a period of transition. Arlyne Johnson, formerly with the PNG program, and her husband Michael Hedemark assumed responsibilities for Lao. Troy Hansel trained government staff in biodiversity conservation, field survey techniques, and English.

Director for Science George Schaller initiated a Mongolian gazelle study in the eastern steppes in cooperation with the Mongolian Academy of Sciences and the UNDP-GEF Biodiversity Project. With his Mongolian counterpart, B. Lhagvasuren, and Field Vet Karesh, Schaller investigated the impacts of a bacterial disease resulting from unusually heavy rains and surveyed the animals' health. Kirk Olson, a graduate student at the University of Massachusetts, set up a radio-tracking program to determine the gazelles' migratory pattern. Schaller's work is supported by the Gilbert and Ildeko But-



**Director for Science George Schaller (above) studied Mongolian gazelles (left) and surveyed wildlife in Nepal and Tibet. Inset: a rain forest tree frog, *Litoria gennimaculata*.**

ler Foundation and the Pattee Family Fund for the Preservation of Endangered Species.

With Hamid Sardar, a Tibetan scholar from Harvard, Schaller conducted a wildlife survey in the Nepal Himalayas along the upper reaches of the Bhuri Gandaki River and its tributaries. He also surveyed Huola, Mang Co, and Nigou reserves in southeastern Tibet. The surveys indicated that as a whole, the region still has sparse, often highly localized populations of various ungulates and large carnivores. The team found no evidence of snow leopards.

In China, Endi Zhang moved ahead with the Asia Conservation Communication Program to improve awareness in the Asian community of wildlife product consumption—the first wildlife consumer-oriented program based in China by any international conservation organization. His evaluation indicated that the project has changed attitudes among school students and students of traditional Chinese medicine—future consumers of wildlife.

## LATIN AMERICA PROGRAM

It was a year of transition for the Latin American and Caribbean Program, as Bolivian expert Andrew Taber assumed the director position. Several major projects were launched that focus on conservation of key wildlife in major Neotropical landscapes. Our fourth regional meeting was held at Santa Rosa National Park, a protected area in the vaunted Costa Rican park system. The meeting was hosted by Mario Boza, considered the “father” of the national park system in Costa Rica and recognized in *TIME* as one of the great Latin American environmental leaders of the century.

In Guatemala, Roan McNab worked with the Uaxactún community to determine the fate of 175,000 acres of tropical forest in a government-granted “concession.” This represents an opportunity to investigate how best to conserve wildlife within such community-based sustainable development projects. In the Mayan forest of the Petén, Robin Bjork studied the ecological requirements of mealy parrots and the effects of landscape alteration patterns. To find food or suitable nesting trees, these birds travel long distances, frequently outside protected areas, making them very vulnerable.

Bruce and Carolyn Miller are based in the tall, moist forest of Gallon Jug, Belize, thanks to the generosity of Barry Bowen. Based on 12 years of work, they have compiled a Belize Biodiversity Information System (<http://fwie.fw.vt.edu/wcs/>). Camera-trap photos of jaguar, puma, ocelots, tapirs, and other species show the region to be a hotspot of mammal activity. In addition, the Millers have perfected bio-acoustical methods that greatly increased their understanding of bat ecology and distribution. Following site visits, WCS trustee Edith Newberry again provided support to the program in Belize, as well as in Brazil and Peru.

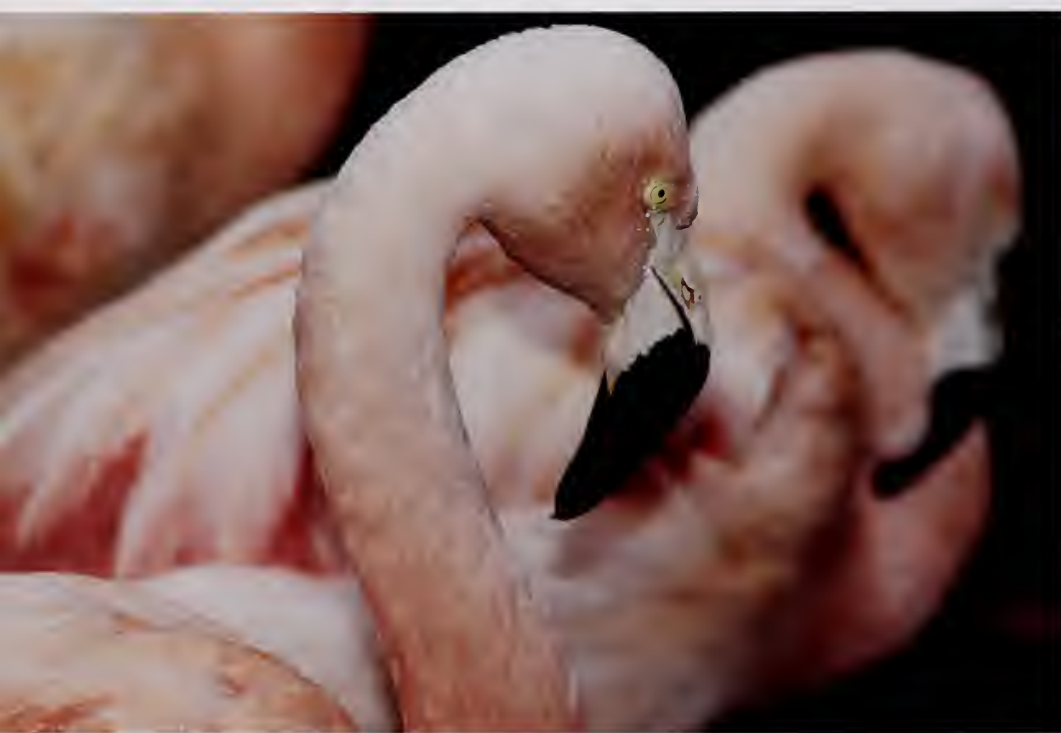
Hurricane Mitch devastated the northern coast of Honduras, but WCS’s Marine Research Station in nearby Middle Cay, Belize, escaped destruction. Major grants from Lady Kinnoull’s Trusts helped maintain operations and protection of Glover’s Reef. In Honduras, priorities shifted to emergency relief and reconstruction, but Jim Barborak continued with PROANSATE, FUCSA, and FUCAGUA to draft management plans for protected areas crucial to the Mesoamerican Biological Corridor. Cynthia Lagueux’s sea turtle fishery study on Nicaragua’s Caribbean coast showed the resource is being

overexploited. She works closely with the government and Miskito Indians to develop alternative sources of protein and income.

In Venezuela, focus continued on the Caura River basin. Partner NGO, ACOANA, headed by José Ochoa, lead academic, government, non-government, and indigenous organizations to look at protection and sustainable management of tropical America’s largest untouched watershed. The local science foundation, CONICIT, and Venezuela’s largest private foundation, Fundación Polar, support this work. After studying the fishery for three years, Conrad Vispo and his team from Fundación La Salle found it to be healthier than in other parts of the Orinoco system. In a project with PROVITA to conserve and manage yellow-shouldered parrots, 21 birds confiscated from traders were released on Blanquilla Island. Twelve were recaptured after it became apparent they were not adjusting well.

The Center of Excellence in Conservation Biology at Colombia’s Ucumari Regional Park suffered structural damage during a January earthquake. Nevertheless, Gustavo Kattan and Carolina Murcia continued to study how organisms respond to landscape configurations and scales of disturbance, as well as the consequences of management schemes to maintain and restore biodiversity. The Charlotte Wyman Trust supported Murcia through the WCS Women in Conservation Program, and the center was supported by the John D. and Catherine T. MacArthur Foundation.

Also in Colombia, Jaime Cavelier used satellite-imagery, tracks, and camera-traps to study mountain tapirs. He estimated the population at 1,200 in the 3.75-million-acre area around Laguna La Cocha and 11 to 19 individuals in 17,500-acre Los Nevados National Park. Cavelier was highlighted as one of Latin America’s most promising young environmental leaders in *TIME*. His work and that of Patricia Majluf in Punta



**WCS scientists carried out the first winter survey of high-Andes flamingos (left). In Peru, Catherine Sahley is evaluating management of community-owned vicuñas (right).**





San Juan, Peru, and an evaluation of training in Colombia and Venezuela by Maria Elfi Chaves and Isabel Novo, were funded by The Walt Disney Company Foundation. Majluf negotiated an agreement with PROABONOS, the agency charged with managing the guano harvest, to establish a research and training center and to recommend harvesting schedules to minimize impacts on wildlife. In the Madre de Dios lowlands, Charles Munn works on macaw ecology and conservation, and community-based conservation. Meanwhile, Catherine Sahley is evaluating management of community-owned vicuñas at Salinas-Aguada Blanca National Reserve.

In Ecuador, WCS provided technical assistance to CARE-Ecuador through EcoCiencia and Jatun Sacha in the Sustainable Use of Biological Resources (SUBIR) project funded by USAID. Teams monitored the effects of community-based, low-impact timbering on wildlife abundance and diversity.

Márcio Ayres is working to consolidate Brazil's Amaña Sustainable Develop-

ment Reserve. With Jaú National Park and Mamirauá Ecological Reserve (which Ayres was also instrumental in creating), this is the largest protected forest in the world. Six feature-length films were shot in Mamirauá and 14 television programs dedicated to the reserve's conservation programs.

The Liz Claiborne-Art Ortenberg Foundation provided valuable support for training and research in Bolivia, including a pro-

Dee Boersma has been monitoring the Magellanic penguins at Punta Tombo, Argentina, since 1982, documenting the impacts of human activities, including tourism, ranching, fishing, and oil pollution. She fitted 44 penguins there and in the Falkland Islands with radio transmitters to study high-sea foraging locations. Penguins breeding in Patagonia forage over 300 miles during incubation; those breeding on the is-

## WCS SCIENTISTS WORK TO RAISE PUBLIC AWARENESS OF CONSERVATION

ject with Missouri Botanical Garden. Bolivian wildlife is under threat from major gas and oil development. Michael Painter made critical advances in policy through studies on mitigation of environmental impacts. Lilian Painter and Robert Wallace started a major project with CARE, the local Institute of Ecology, and the National Protected Area Service in Madidi National Park, which contains some of the highest diversity of birds of any protected area, as well as Andean deer, spectacled bear, tapir, and jaguar.

lands travel shorter distances. This research is partially funded by the Falkland Islands government and the New Island Trust. A Turner Foundation grant also supported this work as well as work by Pablo Yorrio on seabirds, Claudio Campagna on marine mammals, and the Field Veterinary Program's Marcela Uhart.

Experts predict the collapse of the hake fishery off Argentina in a few years, which may cause a shift to anchoita and squid, vital to the diets of many animals. With guid-





**WCS Metropolitan Conservation Alliance director Michael Klemens (left) points out native tadpoles to environmental activist Robert F. Kennedy Jr. and Peter Vallone. Several WCS projects focus on the wolf (right).**

ance from William Conway and funding from the Turner Foundation, Graham Harris coordinates implementation of the Patagonian Coastal Zone Management Plan, addressing fisheries, oil exploitation, and tourism development. An extraordinary contribution from Life Trustee Joan O.L. Tweedy created an endowed fund for the historic Patagonian Conservation Program.

In northwestern Argentina, WCS sup-

ports the MacArthur Foundation, Wild Wings Underhill Foundation, Audubon Society, Shell Corporation, and Instituto von Humboldt, among others. Through the program, 87 conservation projects have been funded in Venezuela and 49 in Colombia. More than 75 percent of those participating in this training continue to work in conservation.

In March, Jaguar North America combined with forces WCS and Universidad Na-

views with leading researchers and managers, reviewed the status of individual species, and identified key information gaps and management needs.

John Weaver, with support from Lyndon L. Olsen and the Bullitt Foundation, obtained field data on lynx in the lower 48 states with his innovative scented rubbing posts that collect hair for DNA analysis. He trained U.S. Forest Service biologists to use this method, and they documented the presence of lynx in the Cascade Mountains of southern Washington and Oregon for the first time in 40 years. The Forest Service has adopted Weaver's technique for use in nationwide lynx surveys. Under contract to the U.S. Fish and Wildlife Service, Weaver and associate Peggy Wood successfully adapted his technique for surveys of ocelots in south Texas.

## WCS DEVELOPS CONSERVATION-BASED COMMUNITY PLANNING MODELS

ported a study of the Andean leopard, perhaps the rarest of South American cats. Andrés Novaro, Pablo Perovic, and Susan Walker collected ecological data, developed surveys, and evaluated sites for a long-term study. To complement data previously gathered in summer censuses of flamingo populations in the high-Andes, WCS supported the first winter census throughout the birds' range in Argentina, Bolivia, Peru, and Chile.

Training is an important program component. Bruce Miller joined José Ochoa in Venezuela to teach a workshop on bat monitoring. María Elfi Chaves, WCS country coordinator in Colombia, with Isabel Novo of EcoNatura Venezuela and support from The Walt Disney Conservation Fund, evaluated training and small-grants programs. Over the years, the small-grants program has been supported by the Jessie Smith Noyes Foundation, the European Commission, Fundacion FES (Colombia),

cional Antónoma de Mexico to launch the first jaguar workshop. Held in Mexico City, "Jaguars in the Next Millennium" brought together the world's experts to compare data and construct a Geographic Information System map database showing what is known and not known about jaguar status, ecology, and distribution from southern Arizona to northern Argentina. Participants set priorities for jaguar conservation and study. In June, Jaguar Cars pledged support for five years for a WCS program to protect the jaguar, the largest cat in the Americas.

### NORTH AMERICA PROGRAM

Carnivores continued to benefit from support of the Geraldine R. Dodge Foundation. As a follow-up to a 1996 WCS workshop, Justina Ray compiled an issues paper on mesocarnivores in the Northeast. Ray presented the results of her surveys and inter-

Buoyed by funding from the Ford Foundation, the Adirondack Communities and Conservation Program in New York State began a successful initiative to promote conservation-based community development. Cali Brooks and Bill Weber coordinated activities, including a pioneering study of ecotourism potential and impacts by Tim Holmes and Bryan Higgins. Heidi Kretser, Todd Thomas, and Cali Brooks surveyed community assets and attitudes in three interior hamlets. Andy Keal and Jerry Jenkins generated maps for a landmark social, environmental, and historical atlas of the Adirondacks. Jenkins also continued to explore hardwood regeneration failure and the separate but possibly cumulative effects of deer browsing and acid rain on this phenomenon in the western Adirondacks.

Larry Niles focused his arctic breeding bird research on red knots, inter-continental migratory shorebirds in population decline. Sarah Ward helped Niles trap and band migratory shorebirds on the Delaware Bay as



the birds made their brief annual stop to feed on horseshoe crab eggs. Niles then followed the tagged birds to their arctic breeding grounds, where he was the first to observe and assess their breeding success and ecology. This project has tremendous potential to inform the highly controversial commercial horseshoe crab harvest debate.

In the Teton area of Wyoming, Joel Berger and Carol Cunningham continued to study ecosystem effects of predator-prey interactions. They noted a significant increase in moose mortality as a result of recent wolf and grizzly bear migrations from neighboring Yellowstone National Park.

In California and Oregon, Steve Zack is engaged in a long-term effort to understand, and reverse where possible, the negative impacts of commercial logging and ranching

on wildlife and ecosystems. In Ponderosa pine landscapes he analyzed the keystone role of woodpeckers, the function of fire regimes, and the importance of forest decay. Also in California, Claire Kremen studied the diversity of native pollinators.

Alaska is undergoing increased pressure from growth, development, and tourism, particularly in the Chilkat Valley, home of the world's largest congregation of bald eagles. This is where research associate Angie Hodgson—with WCS, the Bald Eagle Foundation, and Alaska Department of Game and Fish—has established a monitoring project on the impacts of commercial rafting and residential and recreational development on the eagles. As a top predator bridging the line between aquatic and terrestrial habitats, the bald eagle can indicate an

ecosystem's health and the success of management practices.

The Metropolitan Conservation Alliance grew thanks to support of the Doris Duke Charitable Foundation, the Surdna Foundation, the New York City Council, Sweetwater Trust, and Westchester Community Foundation. Program Manager Jim McDougal and Administrative Assistant Michelle Black joined Program Director Michael Klemens at the new field office located in Rye, New York.

The Alliance focuses on habitat fragmentation and loss in the tri-state metro region and brings together stakeholders and experts to address ecological, social, economic, and legal aspects of land-use planning. At the Great Swamp in Putnam and Dutchess counties in New York and Fairfield County,





Connecticut, scientists collected data on native wildlife that are especially sensitive to changes in habitat. In the Wallkill Valley and Highlands of New York and New Jersey, the Alliance worked with communities to develop strategies to protect ecosystems and began wildlife surveys. Lectures and walks in the Eastern Westchester Biotic corridor brought the results of biological inventories to the attention of community leaders for consideration in planning. Information provided by the Alliance was a key factor in New York State's decision to establish Stewart State Forest. A management plan for this lowland forest calls for recreational development to be guided by protection of ecological systems.

## MARINE PROGRAM

The generous support of The David and Lucile Packard Foundation, Lady Kinnoull's Trust, The Pew Charitable Trust and Edith Newberry enabled WCS to launch its marine conservation initiative. Designed to coordinate and enrich WCS's growing expertise in marine conservation studies, the program is directed by Ellen Pikitch. She chairs

the New England Fishery Management Council's Scientific and Statistical Committee and served on a panel to review overfishing designations in the mid-Atlantic and New England. A core program initiative is biodiversity conservation in the Caribbean, focusing on sharks and groupers.

Fisheries conservation is also a major focus. Assessment of shark populations in U.S. waters of the Atlantic revealed that some populations were more depleted than previously thought and in urgent need of rebuilding. In May, the U.S. government adopted the WCS scientific model as the basis for its shark recovery plan. With continued support from The David and Lucile Packard Foundation, Pikitch, Beth Babcock, and Murdoch McAllister are applying this approach to North Atlantic swordfish.

Pikitch served on the scientific crew of an expedition to Atol das Rocas, Brazil. Researchers tagged more than 30 lemon sharks and provided the first documentation of that species' mating behavior.

Dan Erickson received a grant from the Alaska Fisheries Development Foundation for field trials of a new bait for longline fishing gear designed to reduce unwanted catch—called bycatch. Worldwide, bycatch is estimated at 27 million metric tons a year.

To curb this excessive mortality, he helped devise a bait that is attractive to species fishermen want to catch, such as halibut, but repellant to species that cannot suffer excess mortality, such as Pacific cod. As an extra conservation benefit, the bait is made from bycatch in the pollock fishery. At the invitation of the Japanese government, Erickson collaborated with researchers from the National Research Institute of Fisheries Engineering in Hasaki to evaluate impacts of beam trawling in Tokyo Bay.

In May, Beth Babcock visited Patricia Majluf's site in Peru to launch a study of the small-scale fishery there. Babcock will apply fisheries models to data on activities of the fishing fleet, including fishing locations, species caught, and economic information, to determine how the fishery responds to biological and economic conditions.

With support from the government of Iceland, Geir Oddsson completed an initial analysis of the small-scale fisheries of Cape Verde, West Africa—central to economic activity in the region. Oddsson found that many species are being harvested at unsustainably high rates and reported his management recommendations to the Cape Verde government.

At WCS's field station at Glovers Reef Atoll, Belize, managers Tom Bright and Cindy Liles attract top-notch scientists and work with the government to protect the fish and corals of this spectacular marine ecosystem. Bright, Tim McClanahan, and Chuck Carr documented reef hurricane damage and explored possible restoration measures. Dennis Thoney, from the New York Aquarium, supervised a coral survey at Glovers Reef Atoll. Meanwhile, Charles Acosta's studies of queen conch and lobster there highlighted the need to design networks of marine reserves that function together to protect biodiversity across a seascape. Jacque Carter compiled a guide to the fishes of Belize, which will serve as a vital resource for scientists, conservationists, and managers.

**The WCS marine conservation initiative, under the direction of Ellen Pikitch (left), was launched during the year.**





## Africa

### BOTSWANA

1. Effects of elephants and fire on woodland habitats. Raphael Ben-Shahar

### CAMEROON

2. Conservation and community participation in Banyang-Mbo Forest Reserve. David Hoyle, Bryan Curran, Roger Fotso, David Nzouango, Andrew Inyang, Dominic Ngwesse, Christine Tataw, and Lewis Nkembi
3. Crop-raiding and the economic losses faced by local communities. Anthony Nchanji and Robert Rose
4. Biological inventory of the Banyang-Mbo Forest Reserve. Roger Fotso, Martha Betchem, Mercy Nambu, and Vincent Eyabi

### CENTRAL AFRICAN REPUBLIC

5. Dzanga forest elephant demographics and social dynamics (WCS/USFWS). Andrea Turkalo
6. Survey and behavioral ecology of agile and gray-cheeked mangabeys. Natasha Shah

### CHAD

7. Herpetological communities in the oases of the Sahara Desert-Chad. Michael Klemens

### CONGO REPUBLIC

8. Nouabalé-Ndoki Project (WCS/USAID/GEF). J. Michael Fay, Bryan Curran, Djoni Bourges, Jerome Mokoko
9. Nouabalé-Ndoki buffer zone management (WCS/USAID/GEF). Paul Elkan, Sarah Elkan
10. Forest elephant migration and ecology (WCS/USFWS/Save the Elephants). Steve Blake, William Karesh
11. Biological surveys and monitoring in Nouabalé-Ndoki National Park (WCS/GEF). J. Michael Fay, Steve Blake, Paul Elkan
12. Bongo ecology and use of forest clearings (WCS/Busch Gardens). Paul Elkan
13. Ecology of 'bais' and their importance for wildlife. Sarah Elkan
14. Protection for important elephant populations in Congo (WCS/USFWS). J. Michael Fay
15. Mbeli bai gorilla social dynamics and ecology (WCS/Busch Gardens). Richard Parnell

### DEMOCRATIC REPUBLIC

#### OF CONGO (formerly ZAIRE)

16. Ituri Forest Research and Training Center (CEFRECOF). Terese Hart, John Hart, Innocent Liengola
17. Large-mammal and human-impact surveys of the Okapi Wildlife Reserve. John Hart and Paulin Tshikaya
18. Impact of the civil war on bush-



The conservation of coral reefs around the world was a focus of the WCS Africa and Marine programs.

meat trade and elephant poaching (WCS/USFWS). Jean Joseph Mapilanga and John Hart

19. Comparative forest dynamics. Terese Hart, Innocent Liengola, Makana Mekombo, Ewango Corneille
20. Community participation in Okapi Wildlife Reserve. Richard Tshombe
21. White rhino monitoring in Garamba National Park (WCS/WWF). Kes Hillman Smith
22. Effect of the civil war on the large mammal fauna of the Kahuzi Biega National Park. Omari Ilambu
23. Effectiveness of different anti-poaching strategies in Garamba (WCS/WWF). Mbayma Atalia
24. Forest duikers: feeding ecology, social behavior and predator-prey relations. John Hart
25. Effect of the civil war on elephant populations in the Virunga National Park. Leonard Mubalama

### EGYPT

26. The effects of overgrazing on the herpetofauna of the Sinai. Omar Attum

### ETHIOPIA

27. Census of elephants in Mago National Park. Yirmed Demeke

### GABON

28. Research and training for management of Lopé Forest (WCS/ECOFAC). Lee White
29. Impacts of logging on forest flora and fauna. Lee White
30. Forest history and dynamics and their implications for management in Lopé Forest Reserve. Lee White
31. Mandrill ecology and ranging patterns (WCS/SEGC). Kate Abernethy, William Karesh

32. Use of plant genetics to map forest refuges (WCS/CARPE). Nicole Muloko Ntoutoume

33. Ecology of forest buffalo in Lopé Reserve. Lisa Molloy, Lee White, Kate Abernethy
34. Biodiversity of fishes in the Ogooué river basin. Andre Toham

### GHANA

35. Assessment of crop damage by elephants in the Red Volta Area. Moses Sam
36. Conservation of endangered primates in southwest Ghana. John Oates, Michael Abedi-Lartey

### IVORY COAST

37. West African manatee conservation and education. Akoi Kouadio
38. The ecology of the crowned eagle in Tai Forest. Suzanne Schultz

### KENYA

39. Maasai Mara working group. Helen Gichohi
40. Wildlife distribution and habitat use in the Kitengela corridor: Nairobi National Park and the Athi-Kapiti plains. Helen Gichohi
41. Natural resource economics in wildlife conservation. Albert Mwangi
42. Coral reef research and conservation. Tim McClanahan
43. Habitat rehabilitation of Amboseli wetlands. African Conservation Centre Staff
44. Ecological monitoring in Amboseli National Park. David Western
45. African Conservation Centre (ACC)—development of a national NGO. Helen Gichohi
46. Conservation of large carnivores in livestock areas. WCS/AWF, Laurence Frank
47. Population density and ecology

of Tana River crested mangabey. Julie Wiecekowsky

48. Effects of habitat fragmentation on the Taita white-eye. Ronald Mulwa
49. Biodiversity of land molluscs in Arabuko-Sokoke Forest. Charles Lange
50. Conservation of Turner's eremomela. David Kiptoo Kosgey
51. The ecology of small antelopes in Arabuko-Sokoke Forest. Erustus Kanga
52. The effects of marine parks on local fisheries catches. Boaz Arara

### MADAGASCAR

53. Masoala National Park management and ecotourism development (WCS/CARE/ANGAP/DEF/Peregrine Fund/Stanford CCB/USAID). Matthew Hatchwell
54. Ecological monitoring at Masoala National Park. Claire Kremen
55. Distribution and inventory of insect taxa. Lanto Andriamampianina, Tiana Raharitsimba
56. Butterfly ranching (WCS/Masoala Project). Tiana Raharitsimba
57. Monitoring of diurnal lemurs at Masoala National Park. Marius Rakotonratsimba
58. Cetacean research and conservation in Antongil Bay (WCS/AMNH). Howard Rosenbaum, Yvette Razafindrakoto, George Amato, Rob DeSalle, Matthew Hatchwell
59. Marine mammal conservation in northwest Madagascar. Yvette Razafindrakoto
60. Bushpig densities and ecology on Nosy Mangaby and in Masoala National Park. Vonjy Andrianjakarivelo, Emilienne Razafindrakoto

61. Reptile inventory at Masoala National Park. Rosalie Razafindrasoa
62. Ecology and status of the flat-tailed tortoise in Kirindy Forest, west-central Madagascar (WCS/JWPT). John Behler, Quentin Bloxam, Herilala Randriamahazo
63. Veterinary assessment of the health status of captive and wild radiated and spider tortoises. Bonnie Raphael, John Behler
64. Survey of bamboo lemurs. Chia Tan
65. Effects of forest composition, disturbance, and fragmentation on the social behavior and feeding ecology of black and white ruffed lemurs. Jonah Ratsimbazafy
66. Humpback whale populations around Fort Dauphin. Justin Retenany
67. The effects of the fishing industry on dolphin populations around Fort Dauphin. Norbert Andrianarivelo
68. The effects of forest fragmentation in Ranomafana National Park. Alex Dehgan

## NIGERIA

69. Status of primates and forests in eastern Nigeria. John Oates
70. Conservation of an isolated gorilla population in the Afi Mountains. Kelley McFarland

## RWANDA

71. Nyungwe forest conservation: ecotourism, education, inventory and monitoring. Michel Masozera, Felix Mulindahabi, Martin Sindikubwabo
72. Biological survey of the Nyungwe Forest Reserve. Michel Masozera, Alastair McNeilage, Andrew Plumtre, Innocent Liengola, Corneille Ewango, Terese Hart
73. Feeding ecology and ranging of chimpanzees at high altitudes. Michel Masozera
74. Ranging behavior of a group of 400 colobus monkeys. Felix Mulindahabi, Michel Masozera, Andrew Plumtre
75. Education program around Nyungwe Forest Reserve. Barakabuye Nsengiyumva, Michel Masozera

## SOUTH AFRICA

76. Support to Virunga National Parks staff for equipment. Andrew Plumtre, Amy Vedder
77. The effect of civil war on ungulates/poaching activity, Parc National Des Volcans. Andrew Plumtre
78. The status and ecology of tortoises in the Great Karoo. Megan McMaster

## TANZANIA

79. Biodiversity assessment and the development of professional ca-

80. The effect of poaching on elephant social systems, Tarangire. Charles Foley, Lara Foley
81. Cheetah survival and behavior in woodlands versus savanna habitats. Sarah Durant
82. Effects of tourism revenue-sharing on wildlife in Zanzibar. Karen Archibald
83. Loss of endemic tree species in montane forests of Tanzania. Norbert Cordeiro
84. Effects of sport-hunting on lions. Karyl Whitman
85. Professional training of conservation scientists. WCS Staff
86. Amphibian communities in forests. Alan Channing, Michael Klemens, Kim Howell

## UGANDA

87. Wetlands refugia for indigenous fishes. John Olowo, Lauren Chapman
88. Primate dispersal and conservation, Kibale Forest. William Olupot
89. Recovery of plant and animal communities in the Kibale Corridor. Colin Chapman, Lauren Chapman
90. Nationwide survey of chimpanzees in Uganda. Andrew Plumtre, Sam Mugume, Debby Cox
91. Monitoring the effects of selective logging on the bird community in the Budongo Forest Reserve. Isaiah Owunji
92. Phenology, seed dispersal and germination of selected tree species in the Budongo Forest Reserve. Andrew Plumtre
93. Research support to MSc. students in the Bwindi Impenetrable National Park. Alastair McNeilage
94. Radio-tracking of Nahan's francolin. Eric Sande
95. Diversity of amphibians in Lake Nabugabo. Mathias Behangana
96. Effects of gap size on bird communities in Budongo Forest. Charles Kahindo

## ZAMBIA

97. Nyamaluma community-based training and land-use planning/ADMADE. (WCS/NPWS/USAID). Dale Lewis
98. Status and ecology of the black-checked lovebird. Louise Warburton
99. Comprehensive monitoring systems for community based wildlife conservation in Africa: Determinants of data quality. Andrew Lyons

## ZIMBABWE

100. The ecology and deterrence of

crop-raiding elephants. Ferrel Osborn

## REGIONAL AFRICA

101. Central African Regional Program for the Environment (CARPE) (WCS/USAID/BSP/WWF/NASA/WRI/USPC/WL). Amy Vedder, Lisa Molloy, Lee White, Peter Walsh, J. Michael Fay
102. Regional internship program in African coral reef ecology and management (WCS/PEW). Tim McClanahan
103. Socio-economic assessments and local community participation in African forests. Bryan Curran
104. Regional training and inventory program in central African forests (WCS/USAID). Lee White, Peter Walsh
105. Regional training and inventory program in central Africa forests (WCS/USAID). Lee White, Peter Walsh
106. Development of elephant monitoring system in the Congo Basin for CITES. John Hart, Lee White, Peter Walsh, Rene Beyers
107. Trinational monitoring: Congo, CAR, Cameroon (WCS/WWF/USAID). J. Michael Fay
108. Development of efficient methods for large mammal surveys (WCS/CARPE). Peter Walsh, Lee White
109. Post-graduate training and professional development (WCS). Andrew Plumtre, Terese Hart, Claire Kremen, Kate Abernethy, Lee White, Matthew Hatchwell
110. Nutritional analyses of food composition for African mammals, birds and reptiles. Ellen Dierenfeld, Andrew Plumtre, Cheryl Fimbel, Aaron French, Nancy Conklin-Brittain, Melissa Remis, Jessica Rothman

## Asia

### CHINA

111. Tibet Autonomous Region wildlife surveys and reserve planning. George Schaller
112. Biodiversity conservation in the Himalayas of the southeastern Tibetan Autonomous Region. George Schaller, Tibetan Autonomous Region Forestry Department of China
113. Monitoring tiger population in Heilongjiang Province. Endi Zhang, Dale Miquelle, Xiaochen Yu
114. Asian consumer awareness advertising campaign on tigers. Endi Zhang, Tamara Krizek, Ogilvy and Mather Shanghai
115. Asia Conservation Communication Program. Endi Zhang

## INDIA

116. Rapid assessment of reef responses to elevated seawater temperatures caused by El Niño southern oscillation (ENSO) current system in Indian waters. Rohan Arthur
117. All India Tiger Surveys. Ullas Karanth, M. B. Krishna, N. Samba Kumar, Niren Jain, Srinivas
118. Binturong Surveys in Northeast India (Tripura). Atul Gupta
119. Community ecology and conservation of amphibians in the tropical rain forests of Karnataka. Suryanarayana Rao Addoor
120. Tiger Link Network. Valmik Thapar
121. Ecology of the tiger in Panna, Central India. VNeel Gogte, R.S. Chundawat
122. Karnataka Tiger Conservation Project. Ullas Karanth, Praveen Bhargav, K.M. Chinnappa, Karnataka State Forest Department
123. Ecological study of sympatric hornbills and fruiting patterns in a tropical forest in Arunachal Pradesh, Northeast India. Aparajitha Datta
124. Ecology and conservation of endemic small carnivores in the tropical rain forests of the south-western Ghats. Divya Mudappa
125. Impact of human populations on biodiversity in protected areas. Sachchidanand Jha

## INDONESIA

126. Evaluation of elephant-human conflicts around Bukit Barisan Selatan National Park. Margaret Kinnaird, Timothy O'Brien, Simon Hedges, Martin Tyson
127. Sulawesi Island-wide biodiversity surveys. Rob Lee, Darmawan Liswanto
128. Evaluation of the squirrel and tree-shrew community in Bukit Barisan Selatan National Park. Asri Dwiwarheni
129. Large mammal surveys Bukit Barisan Selatan National Park. Margaret Kinnaird, Timothy O'Brien, M Iqbal, Nurul Laksmi Winarni
130. A census of the endangered Simakohu monkey, *Simias concolor*, inhabiting the Mentawai Islands. Lisa M. Paciulli
131. Bukit Barisan Tiger Conservation Program. Margaret Kinnaird, Timothy O'Brien
132. Effect of conventional and reduced impact logging on wildlife in East Kalimantan. Robert Fimbel, Timothy O'Brien, Nurul Laksmi Winarni
133. Status and distribution of the endangered Moluccan cockatoo.



- Timothy O'Brien, Margaret Kinnaird, Anselmus Jati
134. Movement patterns of Sumba citron crested cockatoo. Margaret Kinnaird, Hendra Kurniawan
135. Effects of forest fires on vegetation and wildlife. Sunarto
136. The ecology of hornbills and other fruit-eating bird species in lowland rain forest habitat islands and the effects of habitat modification, on the island of Sulawesi. Alexis J. Cahill, Jon S. Walker
137. Effects of forest fragmentation on Sumba Island hornbills. Arnold F. Sitompul
138. Ecology and conservation of the white-winged duck in Sumatra. Nancy Drilling
139. Bird censuses in Bukit Barisan Selatan National Park. Nurul Winarni
140. Training and professional development of protected area staff in Kerinci Seblat National Park, Sumatra. Rob Lee
141. Surveys to assess primates in Bukit Barisan Selatan National Park. Maya
142. North and central Sulawesi wildlife and protected areas monitoring and training. Rob Lee, Darmwan Liswanto
143. Asiatic dholes of Java. Simon Hedges, Martin Tyson
144. Conservation biology and behavior of Sumatran orangutans in Kluet, Gunung Leuser National Park, Indonesia. Carel van Schaik, Keyt Fischer
- KOREA**
145. Conservation of biodiversity at Mt. Myohyang National Park in North Korea. William Duckworth, Rob Lee
146. Conservation planning for the Demilitarized Zone. Rob Lee, Ke Chung Kim
- LAO PEOPLE'S DEMOCRATIC REPUBLIC**
147. Community-based conservation project, Luang Nam Tha. Michael Meredith, Arlyne Johnson
148. Public conservation education and training. Troy Hansel
149. Wildlife and habitat surveys. Chantavi Vongkhamhaeng, Bryan Stuart, William Robichaud, Khamkhoun Khounbouline
150. National herpetological survey. Bryan Stuart
151. Bat research and management. Charles Francis
- MALAYSIA**
152. Implementation of "A Masterplan for Wildlife in Sarawak." Elizabeth Bennett
153. The Malaysian WCS/Perhilitan Tiger Project. Ruth K. Laidlaw
154. Helicopter radio-tracking of the giant flying fox, *Pteropus vampyrus natunae*, in Sarawak. Melvin T. Gumal
155. Effects of fire on non-volant mammals in Sabah. Jephthe Sompud
156. Training of Sarawak Forest Department staff in all aspects of wildlife conservation and management. Michael Meredith
157. Breeding biology and conservation management of the black-nest swiftlet, *Aerodramus maximus*, in Sarawak. Lim Chan Koon
158. The effects of logging on wildlife and hunting patterns in Sarawak and influences on this due to implementation of the Wildlife Master Plan. Cynthia Chin, Susan anak Musis Jantan
- MONGOLIA**
159. Biodiversity conservation in the Great Gobi National Park. Thomas McCarthy
160. Research on Mongolian gazelles in the eastern steppes. George Schaller
161. Distribution and movement of migratory Mongolian gazelles. Kirk Olson
- UNION OF MYANMAR**
162. Wildlife surveys. Alan Rabinowitz, U. Saw Tun Khaing
163. Protected area review and evaluation. U. Saw Tun Khaing
164. Training of protected areas staff. U Than Myint
165. Status and distribution of tigers in Myanmar. Saw Dtoo Ta Po, Alan Rabinowitz, U. Saw Tun Khaing
166. Survey of turtles and crocodiles in the Irrawaddy Delta. John Thorbjarnarson
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167. Status and conservation of the woolly flying squirrel/conservation education and biodiversity preservation in the Diamer and Gilgit districts of northern Pakistan. Peter Zahler
- PAPUA NEW GUINEA**
168. Systematics and ecology of the tube-nosed fruit bats. Nancy Irwin
169. Long-term monitoring of frog populations in Australasia, testing the declining amphibian hypothesis. David Bickford
170. The Conservation Education Programme. John Ericho
171. The Crater Mountain Integrated Conservation & Development Project. Robert Bino
172. Biodiversity research and surveys. Debra Wright, Andrew Mack
173. Breeding and feeding behavior of the palm cockatoo. Paul Igag
- PHILIPPINES**
174. Endemic flying foxes. Tammy Mildestein
175. The distribution, abundance, population genetics, and conservation of the Philippine crocodile. Frederick Pontillas
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176. Predator-prey studies and tiger ecology in the Far East. Dale Miquelle
177. Russian brown bear research and conservation in Kamchatka. William Leacock, George Schaller
178. Distribution and status of the Amur leopard. Dale Miquelle
179. Distribution and status of the Amur tiger. Dale Miquelle
180. Ecology and conservation of sympatric brown bears and Himalayan black bears in Sikhotealin Biological Reserve, Russia. Dale Miquelle
181. Conservation and restoration of the oriental white stork in the Amur region. Yuri Darman
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182. Capacity building and conservation outreach training. Christopher E. Filardi, Catherine E. Smith
- THAILAND**
183. Conservation status, habitats, and monitoring of remnant dugong populations. Suwat Pitaksintorn
184. Large mammal surveys, protected area management, staff training. Antony Lynam
185. Conservation of water resources and the pheasant-tailed jacana at Beung Boraphet Non-Hunting Area. Laura J. Howard
- Latin America**
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186. Natural history and wildlife conservation. William Conway
187. Patagonian Coastal Zone Management Plan. William Conway, Guillermo Harris, Claudio Campagna, Pablo Yorio, Fundación Patagonia Natural, GEF-UNDP
188. Ecology and conservation of the Magellanic penguin. Dee Boersma, Pablo Yorio
189. Natural history of Patagonia, conservation strategies, and Península Valdés station management. Guillermo Harris
190. Ecology and conservation of marine birds. Pablo Yorio, Flavio Quintana
191. Andean leopard surveys. Andrés Novaro, Pablo Perovic
192. Seabird conservation in Santa Cruz Province. Esteban Frere, Patricia Gandini
193. Sea lion satellite telemetry and health evaluations. Robert Cook, William Karesh, Marcela Uhart, Claudio Campagna
194. Mother/pup disease immunity and health screening in elephant seals. William Karesh, Marcela Uhart, Mirtha Lewis
195. Pampas deer radio-tracking and health monitoring. Robert Cook, William Karesh, Marcela Uhart
196. Magellanic penguin health monitoring. Robert Cook, William Karesh, Marcela Uhart
- BELIZE**
197. Habitat requirements of juvenile spiny and spotted lobsters. Charles Acosta
198. Reef fisheries research. Jacques Carter
199. Middle Cay Research Station and Glover's Reef Reserve management. Thomas Bright, Jacques Carter, Archie Carr III
200. Foraminifera in lagoon sediments of Glover's Reef Atoll. Pamela Hallock Miller
201. Reef restoration. Tim McClanahan
202. Protected areas management plan and biodiversity database. Bruce Miller, Carolyn Miller, Jeff Waldon
203. Selva Maya monitoring. Bruce Miller, Carolyn Miller
204. Ecology of insectivorous bats. Bruce Miller, Carolyn Miller
205. Selva Maya database and gap analysis. Bruce Miller, Carolyn Miller
206. Density of jaguars and habitat use in Gallon Jug. Carolyn Miller
- BOLIVIA**
207. Andean mammal research and training in Corapata National Park. Lucho Pacheco, Alejandro Roldán
208. Peccary health assessment. William Karesh, Lillian Painter
209. Impacts of forestry on wildlife. Damian Rumiz, Museo de Historia Natural NKM, BOLFOR/WCS/Chemonics, USAID
210. Kaa-Iya del Gran Chaco National Park. Michael Painter, Andrew Noss, Evelio Arambiza, Andrew Taber, WCS/CABI, USAID
211. Bolivia conservation management and policy group. Michael Painter, Andrew Taber, John Robinson
212. Yacare and black caiman health surveys. William Karesh, Robert Wallace, Lillian Painter
213. Spectacled bear ecology and interactions with humans. Susanna Paisley, David Garshelis
214. Famingo ecology and conservation. Omar Rocha, Felicity Arengo, Nación Originaria Uro Murato, Dirección General de Biodiversidad

215. Radio-tracking and health evaluation of South American tapirs, collared peccaries, and brocket deer at Kaa-Iya National Park. Sharon Deem, William Karesh
  216. Pathologic and serologic evaluation of brocket deer at Kaa-Iya National Park. William Karesh, Sharon Deem, Tracey McNamara, Michael Linn, Richard Villarreal
- BRAZIL**
217. Flooded forest conservation in the Central Amazon, Mamirauá Ecological Reserve. José Márcio Ayres, Sociedad Civil Mamiraua (WCS/WWF/ODA/CNP/ EU)
  218. Amanã Sustainable Development Reserve research and management. José Márcio Ayres
  219. Ecology and conservation of river turtles, Mamirauá. Augusto Fachin Teran, Richard Vogt, John Thorbjarnarson
  220. Fish ecology in Amazonian flooded forests. Helder Quiroz, Ronaldo Barthem, José Márcio Ayres
  221. Population ecology and management of black and spectacled caiman. Ronis Silveira, John Thorbjarnarson
  222. Population ecology studies of crocodilians. Ronis Silveira, John Thorbjarnarson
  223. Lear's macaw conservation. Pedro Lima, Charles Munn, CETREL
  224. Seed dispersal by fish and their role in forest regeneration in the Pantanal. Paula Reys
  225. Effects of clearings and edges on understory rain-forest birds. Susan Laurance
- CHILE**
226. Flamingo health assessments. William Karesh, José Luis Galaz Leigh
- COLOMBIA**
227. Student grants program. María Elfi Chaves, FES, Instituto Humboldt
  228. Center of Excellence in Conservation Science. María Elfi Chaves, Gustavo Kattan, Carolina Murcia, Christian Samper, Instituto Humboldt, Ministerio del Ambiente
  229. High Andes bird communities. Gustavo Kattan/CARDER
  230. Cloud forest regeneration in Ucumari Regional Reserve. Carolina Murcia/CARDER
  231. Mountain tapir ecology in Ucumari Regional Reserve. Jaime Cavalier, Diego Lizcano
- COSTA RICA**
232. Mesoamerican Biological Corridor Planning. Mario Boza, GTZ/ CCAD
  233. Strategic financial planning and fund-raising for Costa Rican conservation areas. Mario Boza, Clara Padilla
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234. Conservation of American crocodiles in the Monte Cabaniguan Wildlife Refuge. Roberto Rodríguez Soberón, Manuel Alonzo Taber, John Thorbjarnarson
  235. Evaluation of potential World Heritage Sites. James Barborak, IUCN, Unesco
- ECUADOR**
236. Sustainable Use of Biological Resources Project. Jody Stallings, David Thomas, Peter Fensinger, EcoCiencia, Jatun Sacha, WCS/ USAID/ CARE
  237. Tropical Andes biodiversity monitoring and training. EcoCiencia
  238. Wildlife ecology training. Peter Feinsinger, Martha Crump
  239. Vegetation mapping. Rodrigo Sierra
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240. Uaxactún community conservation and management plan. Roan McNab, John Polisar, James Barborak
  241. Effects of tropical forest alteration and human depredation on habitat use by mealy parrots. Robin Bjork
- HONDURAS**
242. Northern coast protected area management plans. James Barborak, Carla Suárez, Christine Housel, Mike Lara, Andrew Stoll, Archie Carr III, Cathryn Wild, Roger Morales, USAID, Fundación Vida, COHDEFOR, SERNA
  243. Copan Ruins World Heritage Site Master Planning. James Barborak
- MEXICO**
244. Conservation ecology of sperm whales in the Gulf of California. Nathalie Jaquet
  245. Distribution of the Caribbean manatee in the Chetumal Bay Manatee Sanctuary. León Olivera Gómez
  246. Biology and management of American crocodiles in the Chamela-Cuixmala Biosphere Reserve. Marciano Valtierra, John Thorbjarnarson
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247. Marine turtle conservation on the Caribbean coast. Cynthia Lagueux
  248. Protected areas system planning. Mario Boza, Jaime Incer, Fundación Cocibolca
  249. Preserving wildlife habitat on shade coffee plantations, using mantled howler monkeys as umbrella species. Colleen McCann, Fred Koontz, Juan Carlos Martínez, Fundación Cocibolca, Kim Williams-Guillen
- PARAGUAY**
250. Atlantic forest corridor planning. Archie Carr III, James Barborak, Mario Boza, GEF, World Bank
  251. La Flor Wildlife Refuge planning and development. Cynthia Lagueux, Fundación Cocibolca
  252. Parrot trade study. Teresa Zuñiga, Ramiro Perez
- PERU**
253. Relationship between bat fauna and landscape structure in the Atlantic forest. Paulo Gorresen
  254. Coastal wildlife conservation at Punta San Juan. Patricia Majluf
  255. Fisheries and marine mammal conflicts. Patricia Majluf
  256. Macaw ecology and conservation. Charles Munn
  257. Community-based conservation by indigenous communities. Charles Munn
  258. Humboldt penguin health monitoring. William Karesh, Rosana Paredes, Carlos Zavalaga
  259. Southern fur seal health evaluation. William B. Karesh, Patricia Majluf, Paul Calle
  260. Vicuña conservation in the Salinas-Aguada Blanca Reserve, Arequipa, Peru. Catherine Sahley
  261. Longitudinal analysis of community-based wildlife management in the Peruvian Amazon. Richard Bodmer
  262. Vicuña nutritional ecology. Catherine Sahley, Ellen Dierenfeld
  263. Garden hunting in Tambopata. Lisa Naughton
  264. Tourists and Amazonian hosts: Impacts on economy, values, and forests. Amanda Stronza
  265. Investigation of sea lion pup mortalities at Punta San Juan. William Karesh, Patricia Majluf, Paul Calle
- VENEZUELA**
266. Biodiversity of the Caura River watershed: characteristics and conservation priorities. José Ochoa, ACOANA, CONICIT, Fundación Polar
  267. Small mammal inventory and conservation. José Ochoa
  268. Student grant program. Isabel Novo, EcoNatura
  269. Orinoco crocodile conservation. John Thorbjarnarson, Andres Seijas
  270. Ecology and habitat use of spectacled bears. Isaac Goldstein
  271. Jaguars, pumas, their prey, and cattle ranching. John Polisar, Mel Sunquist, Hato Piñero, Fundación Brauga
  272. National park management and training. EcoNatura, WCS, INPARQUES
  273. Fish diversity in the Caura River. Conrad Vispo, UNELLEZ, Fundación La Salle
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274. Yellow-shouldered Amazon genetics, ecology, and conservation. Franklin Rojas-Suárez, Ana Trujillo, Adriana Rodríguez, PROVITA
  275. Caiman habitat use. Maria Muñoz
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  277. Mesoamerican Biological Corridor regional planning and mapping. Mario Boza, Archie Carr III, CCAD
  278. South America training coordination. Maria Elfi Chavez, Peter Feinsinger, Martha Crump
  279. Survey of the high-Andes flamingos. Mariana Valqui, Sandra Caziani, Patricia Marconi, Omar Rocha, Eduardo Rodríguez, Juan Pablo Contreras
  280. Nutritional analyses of food composition for Latin American mammals, birds, and reptiles. Ellen Dierenfeld, Scott Silver, Cary Yeager, Fred Koontz, Paul Cale, John Thorbjarnarson, William Karesh, Bob Cook
  281. Genetic division in wild populations of caiman, Amazon Basin. George Amato, William Karesh
  282. Advising on health management for confiscated wildlife and rehabilitation programs. William Karesh
  283. Mesoamerican Trail System Planning and Development. James Barborak, Archie Carr III, Christine Housel, Andrew Stoll, Melissa Boness, Adelaida Chaverri, World Bank, Dutch Government
  284. Mesoamerican Barrier Reef System GEF Project Planning. James Barborak, Archie Carr III, World Bank/GEF
  285. IX Mobile Workshop on Protected Area Buffer Zone Management. James Barborak, Felipe Matos, David Norman, University for Peace
  286. Corridor of the Americas. Mario Boza, Archie Carr III, James Barborak, Eric Sanderson
  287. Development of biological monitoring for the Maya Forest (Guatemala, Belize, Mexico). Archie Carr III, Bruce Miller, Carolyn Miller, Roan McNab, and others (MAB/TED)

## North America

288. Baseline monitoring of the Arctic breeding ecology of red knots and other shorebird species. Larry Niles



289. Atlas of the Adirondacks. Jerry Jenkins, Andy Keal, Cali Brooks, Heidi Kretser, Bill Weber, Sarah Ward
290. Beaver impacts on biodiversity. Peter Houlihan
291. Adirondack lynx surveys. John Weaver, Jerry Jenkins, Justina Ray, Noah Weber
292. Potential for natural wolf recovery in the northeastern U.S. Bill Weber, Adrian Wydeven, Todd Fuller, Kristi MacDonald
293. Human communities and conservation in the Adirondacks. Cali Brooks, Heidi Kretser, Andrew Keal, Todd Thomas, Jerry Jenkins, Valerie Luzadis
294. Predator-prey interactions in southcentral Alaska. Joel Berger, Kevin White
295. Tourism impacts on local communities and economies in the Adirondacks. Tim Holmes, Bryan Higgins
296. Developing a GIS data base for conservation planning in the Adirondacks. Andrew Keal, Eric Sanderson, Paul Smith's College of the Adirondacks
297. Biodiversity conservation in northern commercial forests through cooperative stewardship. Jerry Jenkins, Wagner Forest Management, Ltd
298. Causes and geography of hardwood regeneration failure in the Adirondacks. Jerry Jenkins, Elizabeth Moffett, Daphne Ross
299. The effects of forest management and natural disturbance on the biodiversity of mixed hardwood-spruce stands in the Adirondacks. Robert Fimbel, Cheryl Fimbel, James Gibbs, James Worrall, Kate Frego, Craig Hedman
300. Oswegatchie roundtables: a multi-stakeholder forum in the Adirondacks. Bill Weber
301. Vermont forest biology initiative. Jerry Jenkins
302. Analysis of land-use planning structures in the tri-state NY Metro Region. John Nolon, Michael Klemens, James McDougal, Matt Sokol, Jodi Mateto
303. Best management practices for wetland landscapes in the northeastern U.S. Michael Klemens, Aram Calhoun, Maine Audubon
304. Bog turtle ESA Recovery Plan. Carole Copeyon, Michael Klemens, state wildlife agencies
305. Bog turtle habitat protection in the Wallkill Valley. Andrew Milliken, Jim Sciascia, Libby Herland, Michael Klemens
306. Box turtle telemetry and preserve design in the Great Swamp. Diane Murphy, Michael Klemens
307. Breeding bird surveys in the Wallkill Valley and eastern Westchester biotic corridor. Joe Zurovchak, Jim McDougal, Henry Burke, Kristi MacDonald
308. Conservation biodiversity and land-use planning based on biological information in the Wallkill Valley and adjacent Highlands of New York and New Jersey. Michael Klemens, Larry Niles
309. Developers' Roundtable: Opportunities and constraints to planning residential and commercial development for ecosystem protection. Michael Klemens, Kristi MacDonald, Metro New York Region Developers
310. Eastern Westchester biotic corridor. Michael Klemens, Susan Carpenter, James McDougal, North Salem and Lewisboro towns
311. Genetics and conservation of mole salamander. James Bogart, Michael Klemens, Jason Tesauro
312. Great Swamp cooperative conservation program. Michael Klemens, Diane Murphy, James McDougal, Friends of the Great Swamp
313. IUCN/SSC Species Editorship. Michael Klemens, Michelle Black
314. Land-use leadership training alliance. John Nolon, Michael Klemens, Jayne Daly
315. Nashua River Valley wetland fragmentation study. David Black, Michael Klemens, Richard Griffiths
316. Pace University analysis of municipal land-use ordinances in the Wallkill Valley of Orange County, NY, and Sussex County, NJ. John Nolon, Michael Klemens, Matt Sokol, Jodi Mateto
317. Stewart State Forest management plan. Michael Klemens, Jim McDougal, NYSDEC, Diane Murphy, Kristi MacDonald, Susan Elbin, Damon Oscarson
318. Turtle conservation handbook. Michael Klemens, James McDougal
319. Research priorities for mesocarnivores in the northeast. Justina Ray
320. Invasive plants and wildlife. Eric Kiviat
321. Lynx surveys across the northern United States using DNA analysis of hair left on scented rubbing posts. John Weaver, George Amato, Warren Johnson
322. Lynx, snowshoe hare, and forest landscape management in the northern Rockies. John Weaver
323. Taku River predator surveys. John Weaver
324. Cougar-wolf interactions in Yellowstone National Park. Toni Ruth
325. Bison, ecology, and brucellosis in the southern greater Yellowstone ecosystem. Joel Berger, Carol Cunningham, Steve Cain
326. Moose and other ungulate responses to the loss and colonization of large carnivores (Grand Teton, Yellowstone). Joel Berger, Carol Cunningham
327. Predator-prey interactions in southcentral Alaska. Joel Berger, Kevin White
328. Moose and bison: a myriad of effects and non-effects by large carnivores on prey systems. Joel Berger, Carol Cunningham
329. Moose density and avian species diversity in willow riparian habitats. Joel Berger, Peter B. Stacey
330. Bird responses to vegetation composition and structural characteristics of eastside pine forests of northeastern California. Steve Zack, Pacific Southwest Research Station, USDA Forest Service, Humboldt State University
331. Responses of birds and small mammals to silvicultural and prescribed fire actions to accelerate development of characteristics of late seral stage forests. Steve Zack, Pacific Southwest Research Station, USDA Forest Service, and Humboldt State University
332. Bird diversity and abundance at the Bureau of Reclamation's East Park Riparian site. Steve Zack, Point Reyes Bird Observatory
333. Neotropical migratory and other bird species' response to Prescriptive Grazing Management in the Sacramento Valley with associated biomonitoring of streams. Steve Zack, Natural Resource Conservation Service, Point Reyes Bird Observatory
334. Wildlife relations to silviculture techniques, prescribed fire, and livestock grazing in forests of northeastern California. Steve Zack
335. Neotropical migrant birds in riparian areas. Steve Zack, Hilary Cooke
336. The response of foraging woodpeckers to wildlife trees created with western pine beetle aggregation pheromone. Steve Zack, Kerry Hughes
337. Partners-In-Flight Oak Woodland Conservation Plan. Steve Zack, Point Reyes Bird Observatory
338. Restoring pollinator habitat for native plant communities and agriculture in the Cache Creek Watershed (northern California). Claire Kremen
339. Ecology of bald eagles and community conservation in the Chilkat Valley of southeast Alaska. Angie Hodgson
340. The present status of jaguars (*Panthera onca*) in southwestern United States. Alan Rabinowitz

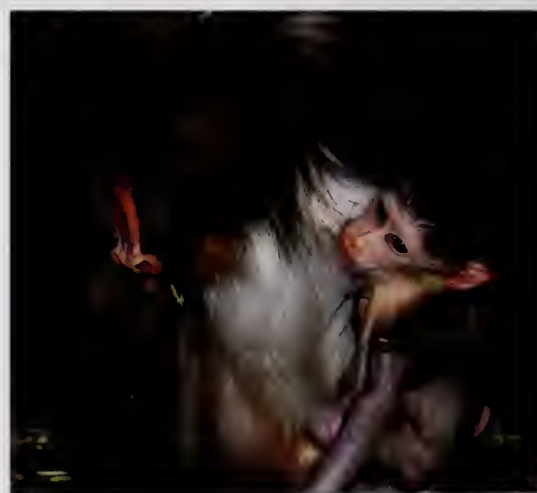
## Marine Programs

341. Small-scale artisanal fisheries of Cape Verde, West Africa. Geir Oddsson
342. Testing an artificial bait in the Alaskan longline fishery. Dan Erickson
343. Opportunities for sturgeon conservation. Liz Lauck
344. Conservation and assessment of sharks, swordfish, and tunas. Ellen Pikitch
345. The Mesoamerican Caribbean seascape. Ellen Pikitch
346. Reef fishes off Belize. Jacques Carter
347. Evaluation of Belize's protected area strategy. Charles Acosta
348. Glover's Reef Geographic Information System (GIS) database. Dennis Thoney
349. Strategic planning for the Glover's Reef Marine Research Station. Archie Carr III, Tom Bright, Ellen Pikitch, Liz Lauck
350. Coral and algae population dynamics and reef restoration project. Tim McClanahan
351. Sturgeon conservation research. Dan Erickson, Liz Lauck
352. Evaluation of beam trawling in Tokyo Bay. Dan Erickson
353. International pelagic shark workshop. Ellen Pikitch, Beth Babcock, Dan Erickson, Liz Lauck
354. North America swordfish population modeling. Murdoch McAllister, Beth Babcock, Ellen Pikitch
355. Fishing strategy choice in a Pacific trawl fishery. Beth Babcock, Ellen Pikitch
356. Catch rates of blue and mako sharks in the U.S. Atlantic recreational fishery. Beth Babcock, Ellen Pikitch
357. Catch composition, effort allocation, and individual vessel variation in the small-scale fishery of Punta San Juan, Peru. Beth Babcock, Patricia Majluf
358. Marine conservation training and capacity-building in Belize. Tom Bright, Pio Saqui
359. Bonefish populations at Glovers Reef atoll. Tom Bright



# faces of conservation

Without a doubt, the major event of the year was the opening of Congo Gorilla Forest, on June 24. This page, clockwise, from above: WCS President William Conway looks at drawings with Trustee Michael Steinhardt and Design Director John Gwynne. WCS Advisor Glenn Close and Incoming WCS President Christopher H. Smith. Tina and William E. Flaherty marvel at this closeup view of one of the 19 resident gorillas. A mandrill female gave birth during the year. WCS Trustee Jane Alexander and WCS Chairman David T. Schiff.

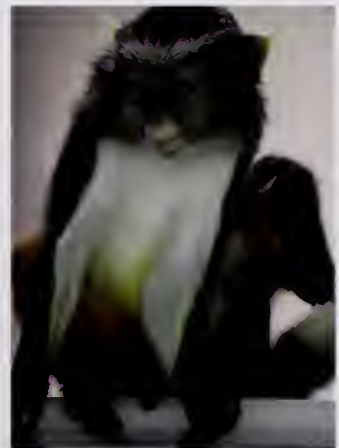


Opposite: Holiday Lights at the Bronx Zoo was a hit once again with illuminated pathways, lighted animal sculptures, choral groups, and celebrities: Hillary Rodham Clinton (with Chairman Schiff). Former Yankee Chris Chambliss autographs a baseball for Graphic Designer Ron Davis. *Wildlife Conservation* National Advertising Manager Diana Warren and Vice President, Business Services, Dennis Baker helped string lights for the winter festivities. A Wolf's guenon in Congo Gorilla Forest. The Bronx Zoo Education Department held teacher training workshops throughout the year. At the April Annual Meeting in Lincoln Center: WCS Life Trustee Laurance S. Rockefeller and Trustee Robert Wood Johnson IV; WCS President William Conway introduces General Curator James Doherty, Caroline Atkinson, and gorillas. Tisch Children's Zoo celebrated its first anniversary (left to right), Wendy Lehman Lash, WCS Vice President Richard Lattis, Preston R. Tisch, WCS Chairman David Schiff, and Joyce Cowin.

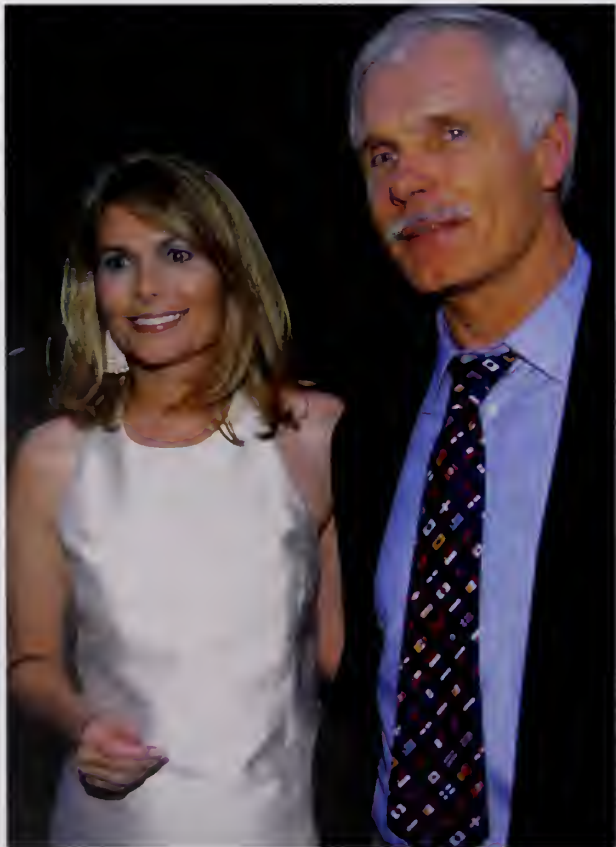
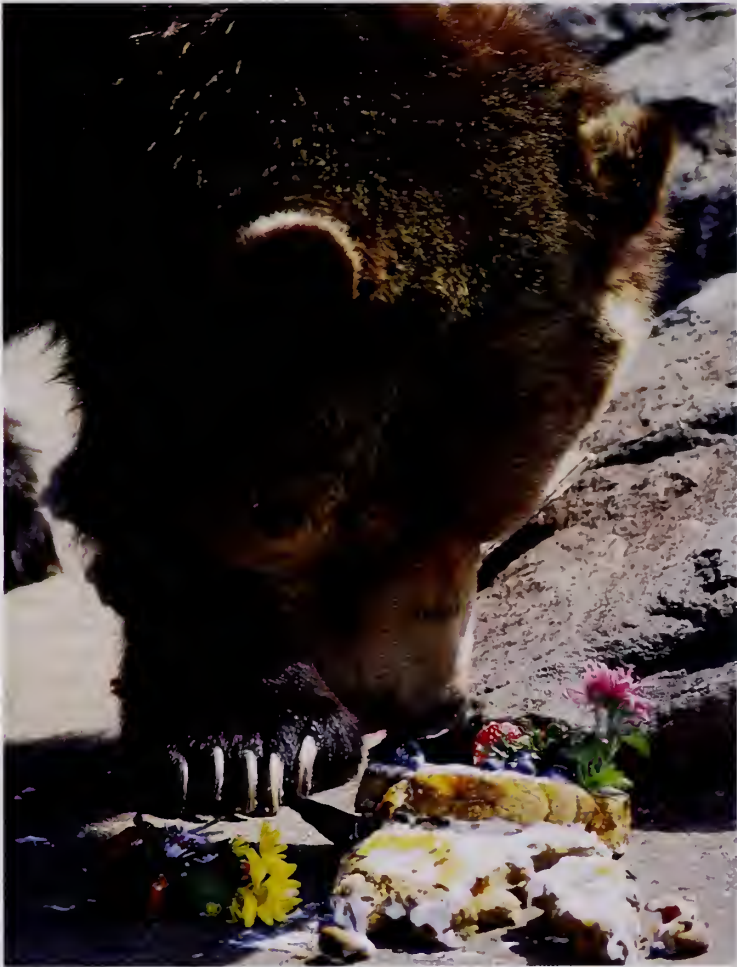
IT IS THE POWER OF PEOPLE THAT HELPS WCS IN ITS MISSION



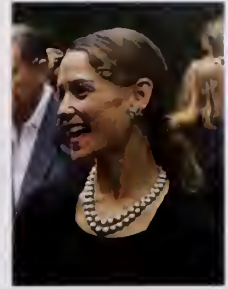
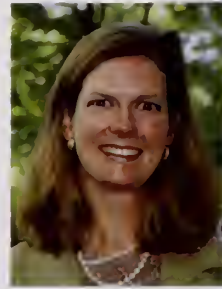












Opposite page, from top right: Attending the June "Great Gorilla Gala," Claudia Cohen and Gala Co-chair Leonard Stern; Actress Donna Dixon, Ronald Perelman, and Dan Ackroyd. WCS Trustee J. Michael Cline at the Explorers' Party at Central Park Wildlife Center.

Opposite, center: To herald spring, the Bronx Zoo put on a "Bear Brunch," held on March 31. "Bearing" the victuals is Senior Wild Animal Keeper Martin Zybura.

Opposite, lower left: WCS Trustee and Gala Co-chair Alison Stern and Ted Turner. Lower right: Singer/songwriter/actor Harry Connick Jr. visited the Bronx Zoo Children's Zoo.

This page, from top left: WCS Chairman David Schiff and General Curator James Doherty escort WCS Life Trustee Brooke Astor through the Congo Gorilla Forest shortly before opening day. Also at the new exhibit, WCS Advisor Mrs. Charles L. Wilson, WCS Trustee Elyssa Dickstein. WCS president William Conway talks with Associate Conservationist Michael Fay and renowned wildlife photographer Michael "Nick" Nichols. WCS Advisor John S. Newberry IV with Design Director John Gwynne. WCS Advisor Judith Hamilton, WCS Advisor Walter Sedgwick, and WCS Trustee Helen M. Spaulding, co-chairs of the Northern California Council, gathered at the Bronx Zoo. WCS Trustee Dr. Judith Sulzberger with a young gorilla.

CELEBRATION CONGO! (right), presented by State Farm Insurance, delighted Bronx Zoo visitors each weekend from June 26 to August 15 with face-painting and other activities.



## WCS SUPPORTERS HAVE A DEEP COMMITMENT TO CONSERVATION







Christine, the female white-cheeked gibbon at the Bronx Zoo's JungleWorld, has raised five youngsters in this lowland rain forest habitat.

## Bronx Zoo

### MAMMALS

	Species and subspecies	Specimens owned	Births/ Hatchings
Marsupialia—Kangaroos, gliders	3	15	0
Insectivora—Hedgehogs, tree shrews	2	31	11
Chiroptera—Bats	6	558	152
Primates—Apes, monkeys, etc.	35	193	14
Edentata—Sloths	2	2	0
Lagomorpha—Rabbits	1	1	0
Rodentia—Squirrels, rats, gerbils, porcupines, etc.	36	511	35
Carnivora—Bears, cats, dogs, etc.	19	77	9
Pinnipedia—Sea lions	1	5	0
Proboscidea—Elephants	1	7	0
Hyracoidea—Hyraxes	1	24	20
Perissodactyla—Horses, rhinos, etc.	5	26	1
Artiodactyla—Cattle, antelope, etc.	27	443	48
Totals	139	1,893	290

### BIRDS

Struthioniformes—Ostriches	2	9	0
Rheiformes—Rheas	1	1	0
Casuariformes—Cassowaries, emu	2	9	0
Tinamiformes—Tinamous	1	21	19
Sphenisciformes—Penguins	1	11	0
Pelicaniformes—Pelicans, cormorants, etc.	3	23	0

Ciconiiformes—Hérons, storks,

flamingos, etc.	12	115	10
Anseriformes—Swans, ducks, geese, screamers	33	252	1
Falconiformes—Vultures, eagles	6	8	0
Galliformes—Maleos, curassows, pheasants, etc.	26	224	29
Gruiformes—Cranes, rails, etc.	10	30	0
Charadriiformes—Plovers, gulls, etc.	18	77	15
Columbiformes—Pigeons, doves	15	61	16
Psittaciformes—Parrots	34	86	1
Cuculiformes—Touracos, cuckoos, etc.	4	18	0
Strigiformes—Owls	5	6	0
Caprimulgiformes—Frogmouths	2	3	0
Coliiformes—Mousebirds	1	3	0
Coraciiformes—Kingfishers, bee-eaters, rollers, hornbills, etc.	22	52	9
Piciformes—Barbets, toucans, woodpeckers	7	10	0
Passeriformes—Perching birds	61	189	27
Totals	267	1,208	127

### REPTILES AND AMPHIBIANS

Chelonia—Turtles	44	326	7
Crocodylia—Alligators, caimans, crocodiles	8	226	4



Squamata (Sauria)—Lizards	29	138	39
Squamata (Serpentes)—Snakes	32	118	16
Caudata—Salamanders	7	45	0
Anura—Frogs, toads	27	229	36
<b>Totals</b>	<b>147</b>	<b>1,082</b>	<b>102</b>

## INVERTEBRATES

Arachnida—Spiders, scorpions, ticks, etc.	18	33	0
Malacostraca—Crabs, lobsters, etc.	2	200	0
Insecta—Insects	82	1,930	0
Chilopoda—Centipedes	3	4	0
Diplopoda—Millipedes	8	95	0
<b>Totals</b>	<b>113</b>	<b>2,262</b>	<b>0</b>
<b>Bronx Zoo Census</b>	<b>666</b>	<b>6,445</b>	<b>519</b>

## Children's Zoo, Bronx Zoo

MAMMALS	Species and subspecies	Specimens owned	Births/Hatchings
Marsupialia—Wallabies	2	10	1
Insectivora—Hedgehogs	2	6	0
Primates—Lemurs	1	9	0
Edentata—Armadillos	2	5	0
Lagomorpha—Rabbits	1	10	0
Rodentia—Squirrels, rats, beavers, porcupines, etc.	12	65	1
Carnivora—Foxes, otters, etc.	6	28	2
Hyracoidea—Hyrax	1	2	0
Perissodactyla—Horses	2	7	1
Artiodactyla—Goats, sheep, camels, etc.	6	61	3
<b>Totals</b>	<b>35</b>	<b>203</b>	<b>8</b>

## BIRDS

Pelecaniformes—Pelicans	1	2	0
Ciconiiformes—Herons	1	33	2
Anseriformes—Ducks, geese	9	48	0
Falconiformes—Vultures, hawks, etc.	4	8	0
Galliformes—Chickens, bobwhites	4	49	0
Columbiformes—Doves	1	10	0
Psittaciformes—Parrots	13	38	15
Strigiformes—Owls	5	12	0
Caprimulgiformes—Frogmouths	1	1	0
Piciformes—Toucan	2	2	0
Passeriformes—Perching birds	2	2	0
<b>Totals</b>	<b>46</b>	<b>205</b>	<b>17</b>

## REPTILES AND AMPHIBIANS

Chelonina—Turtles	10	51	0
Crocodylia—Alligators	1	7	0
Squamata (Sauria)—Lizards	9	35	0
Squamata (Serpentes)—Snakes	8	52	12

Caudata—Salamanders	1	20	8
Anura—Frogs, toads	6	27	0
<b>Totals</b>	<b>35</b>	<b>192</b>	<b>20</b>

Children's Zoo Census	116	600	45
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## St. Catherines Wildlife Survival Center, Georgia

MAMMALS	Species and subspecies	Specimens owned	Births/Hatchings
Marsupalia—Wallabies	1	2	0
Primates—Lemurs, macaques	6	88	12
Perissodactyla—Zebras	1	2	0
Artiodactyla—Antelope	8	74	3
<b>Totals</b>	<b>16</b>	<b>166</b>	<b>15</b>

## BIRDS

Ciconiiformes—Storks	2	3	0
Galliformes—Pheasants	7	27	1
Gruiformes—Cranes, bustards	9	62	7
Columbiformes—Pigeons	1	1	0
Psittaciformes—Parrots	12	67	3
Coraciiformes—Hornbills	7	17	0
<b>Totals</b>	<b>37</b>	<b>176</b>	<b>11</b>

## REPTILES

Chelonina—Turtles	3	115	21
Squamata (Sauria)—Lizards	1	1	0
Squamata (Serpentes)—Snakes	1	2	0
<b>Totals</b>	<b>5</b>	<b>118</b>	<b>21</b>
<b>Wildlife Survival Center Census</b>	<b>58</b>	<b>460</b>	<b>47</b>

## Central Park Wildlife Center

MAMMALS	Species and subspecies	Specimens owned	Births/Hatchings
Insectivora—Hedgehogs, shrews	2	5	0
Chiroptera—Bats	3	500	95
Primates—Monkeys	6	22	2
Lagomorpha—Rabbits	1	9	0
Rodentia—Acouchis, squirrels	1	2	0
Carnivora—Bears, otters, pandas	5	10	0
Pinnipedia—Seals, sea lions	2	5	0
Artiodactylia—Hoofed mammals	5	3	0
<b>Totals</b>	<b>25</b>	<b>556</b>	<b>97</b>

## BIRDS

Sphenisciformes—Penguins	3	57	9
Ciconiiformes—Egrets	1	4	0
Anseriformes—Swans, ducks, geese	13	51	6



The New York Aquarium was the first facility in the world to successfully breed belugas in captivity; currently there are four belugas in the group.

Galliformes—Partridges, tragopans	7	34	6
Gruiformes—Bitterns	1	2	0
Charadriiformes—Puffins	1	14	5
Columbiformes—Doves, pigeons	5	75	20
Psittaciformes—Parrots	2	6	3
Cuculiformes—Turacos	1	1	0
Coliiformes—Mousebirds	1	4	0
Coraciiformes—Bee-eaters, hornbills	1	0	0
Piciformes—Toucans	1	2	0
Passeriformes—Perching birds	26	98	21
<b>Totals</b>	<b>63</b>	<b>348</b>	<b>70</b>

#### REPTILES AND AMPHIBIANS

Chelonina—Turtles	8	79	0
Crocodylia—Caiman	1	1	0
Squamata Sauria—Lizards	10	236	7
Squamata Serpentes—Snakes	13	34	4
Caudata—Salamanders	2	66	6
Anura—Toads and frogs	12	90	21
<b>Totals</b>	<b>46</b>	<b>506</b>	<b>38</b>

Central Park Wildlife Center Census	134	1,410	205
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#### Queens Wildlife Center

	Species and subspecies	Specimens owned	Births/ Hatchings
<b>MAMMALS</b>			
Lagomorpha—Rabbits	1	6	0
Rodentia—Prairie dogs	1	10	0
Carnivora—Pumas, bears, bobcats	4	10	0
Pinnipedia—Sea lions	1	4	0
Perissodactyla—Horses	2	2	0
Artiodactyla—Elk, bison, goats, sheep	8	42	1
<b>Totals</b>	<b>17</b>	<b>74</b>	<b>1</b>

#### BIRDS

Ciconiiformes—Egrets	1	9	0
Anseriformes—Ducks, geese	19	169	0
Falconiformes—Eagles	1	1	0
Galliformes—Turkeys	2	19	0
Gruiformes—Cranes	1	2	0
Columbiformes—Pigeons, doves	1	3	2
Psittaciformes—Parrots	1	5	0
Strigiformes—Owls	2	4	0
Passeriformes—Perching birds	15	68	9
<b>Totals</b>	<b>43</b>	<b>282</b>	<b>11</b>

#### REPTILES

Chelonina—Turtles	3	45	0
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Crocodylia—Alligators	1	3	0
Squamata (Serpentes)—Snakes	3	3	0
Totals	7	51	0

Queens Wildlife Center Census	67	407	12
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## Prospect Park Wildlife Center

MAMMALS	Species and subspecies	Specimens owned	Births/Hatchings
Marsupialia—Wallabies	3	11	2
Insectivora—Hedgehogs, etc.	1	1	0
Primates—Tamarins, baboons	2	9	1
Lagomorpha—Rabbits	1	3	0
Rodentia—Prairie dogs, gerbils, etc.	7	61	19
Carnivora—Pandas, meerkats	4	9	0
Pinnipedia—Sea lions	1	3	0
Hyracoidea—Hyrax	1	6	0
Artiodactyla—Cows, goats, sheep	4	10	0
Totals	24	113	22

## BIRDS

Casuariiformes—Emu	1	2	0
Anseriformes—Geese, ducks	1	2	0
Falconiformes—Eagles	1	1	0
Galliformes—Bobwhites, pheasants, etc.	2	9	0
Gruiiformes—Cranes	1	2	0
Columbiformes—Doves	2	5	0
Psittaciformes—Parrots	3	7	0
Cuculiformes—Touracos, cuckoos, etc.	1	1	0
Strigiformes—Owls	2	3	0
Coraciiformes—Kingfishers, bee-eaters, etc.	1	2	0
Passeriformes—Perching birds	4	22	0
Totals	19	56	0

## REPTILES AND AMPHIBIANS

Chelonia—Turtles	9	60	13
Squamata Sauria—Lizards	8	33	1
Squamata Serpentes—Snakes	8	11	0
Caudata—Salamanders	1	0	0
Anura—Frogs	13	109	23
Totals	39	213	37

Prospect Park Wildlife Center Census	82	382	59
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## New York Aquarium

MARINE MAMMALS	Species	Specimens
Pinnipedia—Sea lions, walrus, sea otters	6	19
Cetacea—Whales, dolphins	2	7
Totals	8	26

## BIRDS

Sphenisciformes—Penguins	1	41
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## REPTILES

Chelonia—Turtles	5	9
Crocodylia—Alligators	1	2
Totals	6	11

## AMPHIBIANS

Anura—Toads and frogs	2	4
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## CARTILAGINOUS FISHES (CHONDRICHTHYES)

Heterodontiformes—Horn sharks	1	2
Lamniformes—Mackerel sharks	1	6
Carcharhiniformes—Ground sharks	4	15
Orectolobiformes—Carpet sharks	2	6
Rajiformes—Rays, skates	4	15
Totals	12	44

## BONY FISHES (OSTEICHTHYES)

Lepidosireniformes—Lungfishes	1	1
Acipenseriformes—Sturgeons	1	6
Elopiformes—Tarpon, bonefish	1	3
Anguilliformes—Eels, morays	1	2
Osteoglossiformes—Old World knifefishes	2	2
Salmoniformes—Trout	2	49
Clupeiformes—Herring	1	10
Cypriniformes—Minnows, carp	5	60
Characiformes—Cave fish, piranha	12	422
Siluriformes—Catfishes	5	11
Gymnotiformes—Knifefish	1	1
Batrachoidiformes—Toadfish	1	8
Cyprionodontiformes—Swordtails	7	300
Atheriniformes—Siversides	6	300
Gadiformes—Codfish	2	21
Scorpaeniformes—Rockfish, stonefish	12	32
Beryciformes—Squirrelfishes	4	17
Gasterosteiformes—Seahorses, pipefish	2	15
Percopsiformes—Cavefish	1	35
Perciformes—Perches, sea basses, cichlids	104	1,645
Pleuronectiformes—Flatfishes	2	6
Tetraodontiformes—Puffers, triggerfish	2	6
Totals	187	2,996

## INVERTEBRATES

Cnidaria—Corals, anemones, jellyfish	45	1,715
Arthropoda—Lobsters, shrimps, crabs	9	57
Mollusca—Snails, bivalves, octopus	11	398
Echinodermata—Starfish, sea urchins	55	374
Totals	120	2,544
Aquarium Census	324	5,622



# during the year

ending June 30, 1999, operating fund revenue and support fell short

of expenditures by one half of one percent—\$482,000. Although this is disappointing compared to last year's nearly break-even results, the past year has been a successful one. Total revenue increased by more than 11 percent. Contributed support, reflecting significant funding

increases for WCS's conservation programs grew 32 percent. Membership dues increased 17 percent via successful site sales.

The Lila Acheson Wallace Fund provided \$5 million in operating grants for Bronx Zoo and Central Park Wildlife Center beautification projects. The City of New York and State of New York support provided core institutional funding, and Federal agencies funding increased 21 percent.

Institutional attendance increased 4 percent to approximately 4.6 million visitors. Gate admission fees and visitor spending provided 32 percent of operating revenue. Investment return appropriated for operations pursuant to WCS's 5 percent spending rate policy provided \$6.4 million, a 10 percent increase. Other revenue includes education programs, conservation grants from non-governmental organizations, and *Wildlife Conservation* magazine subscription and advertising revenues.

Operating expenditures amounted to \$87.8 million, which represented a 12 percent increase over those of the previous year. Program costs (\$75.1 million) represented 88 percent of expenses. International Program expenditures increased more than 50 percent, reflecting significant growth in field sciences staffing, as well as training of local nationals in Asia, Africa, and South America. Increased

management and general expenses included transitional costs related to planned management changes scheduled to occur subsequent to fiscal year end.

Capital expenditure amounted to \$27.9 million, of which \$20.9 million was expended to complete the Congo Gorilla Exhibit, which opened in late June at the Bronx Zoo. Additional improvements included remodeling of the Terrace Cafe and design completion for the Lakeside Visitors Center. Renovation of the Aquatheater at the New York Aquarium was also completed during the year, and planning for a new restaurant facility was under way.

At June 30, 1999, endowment and funds functioning as endowment, providing essential program support, totaled \$210 million. Total return on the funds for the 12-month period was 16 percent.

New initiatives are planned, as WCS continues its commitment to wildlife and to the public through intelligent and forward-reaching exhibits, research, and conservation. The resources to fund these efforts must come from a public and private partnership.

**Education Department programs trained teachers in Papua New Guinea (above with Assistant Curator of Bronx Zoo Education Tom Naiman). Visitor attendance increased 4 percent (right, Bronx Zoo rhinos).**





## Operating Revenues and Expenses

Year ending June 30, 1999 (with comparative amounts for 1998)

REVENUE	\$ THOUSANDS	
	1999	1998
Contributed	\$11,412	\$8,623
Membership Dues	6,120	5,216
Lila Acheson Wallace Fund	5,050	5,040
Investment Income	6,435	5,856
City of New York	19,702	19,086
New York State	1,668	1,663
Federal Agencies	2,485	2,048
Gate Admissions	11,390	10,072
Visitor Revenues	16,858	15,605
Other	6,229	5,214
Total Revenue	\$87,349	\$78,423
<b>EXPENDITURES</b>		
<b>Program Services</b>		
Bronx Zoo	\$37,882	\$37,136
New York Aquarium	10,216	9,416
Wildlife Centers	11,553	10,642
International Programs	13,722	8,890
<i>Wildlife Conservation</i> magazine	1,752	1,694
Total Program Services	\$75,125	\$67,778
<b>Supporting Services</b>		
Management and General	\$7,260	\$6,001
Membership	3,196	2,660
Fundraising	2,250	2,008
Total Supporting Services	\$12,706	\$10,669
Total Expenses	\$87,831	\$78,447
Deficit	\$(482)	\$(24)

*A copy of the audited financial statements is available upon request.*



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(July 1, 1998 to June 30, 1999)

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Joan O.L. Tweedy at Congo Gorilla Forest.

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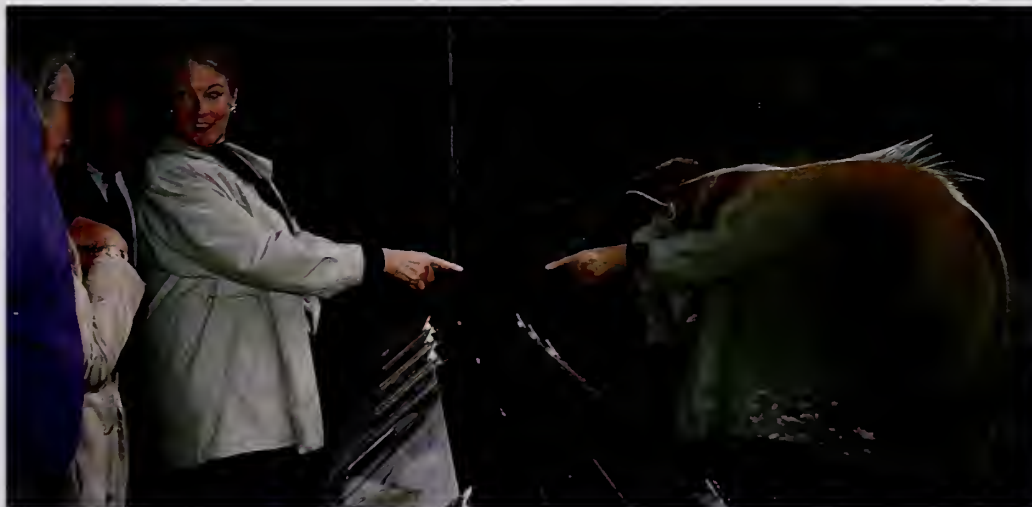


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Mrs. Samuel H. Wolcott III  
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General Director*

Bonnie Sevy Koeppel, *Assistant  
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Louise Ingenito, *Executive Secretary*

Marion Merlino, *Executive Secretary*

Valerie Keane, *Project Assistant*

### Scientific Fellows

Mario Baudoin, Katrina Brandon,  
Enrique Bucher, Adalgisa Caccone,  
Rob DeSalle, Sylvia Earle, Henry Clay  
Frick II, Jane Goodall, James F. Grillo,  
Arthur Hurvitz, Clifford J. Jolly,  
Si-Kwang Liu, Thomas P. Lovejoy,  
Larry Machlin, Reed Noss, Jeffery  
Powell, Peter Raven, Alison Richard,  
Oliver Ryder, M.S. Silberman,  
Michael Soule, John W. Terborgh,  
Elisabeth Vrba, Edward O. Wilson

### Wildlife Conservation Fellows

Brian Curne, Marvin Druger, Stephen  
Factor, Laurie Goldstein, Nogah  
Haramati, Senta Raizen, John Sapienza,  
Stephen A. Schwartz, J.J. Steinberg,  
George Tressell, Karen Weidenheim

### Wildlife Conservation Associates

D. Ashari, Pat Avery, Al Breisch, Peter  
Clark, Mark Goldberger, Stephen  
Goldstein, Steven Grenell, Lawrence  
Grunfeld, Richard Hudson, Elliott  
Jacobson, Lin Klein, George Kramer,  
Mike LaQuaglia, Joseph Levy, Lori  
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Odum, Kamil Oesman, Paul Orsini,  
Andrew Patterson, Kathy Pollina,  
Peter C.H. Pritchard, Alan P. Reed,  
Anders Rhodin, Richard G.  
Robbins, Andrew Sabin, Barry Salke,  
Charles Stolar, David Stoloff, Steven  
Stylianios, Rick Sullivan, George Unis  
William Zovickian

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William Conway, *Director*  
Richard Lattis, *Associate Director*  
James Doherty, *General Curator*

### Mammalogy

James Doherty, *Chairman, Carter  
Chair of Mammalogy*  
Edward Spevak, Patrick Thomas,  
*Curators*  
Colleen McCann, *Associate Curator*  
Marietta Kalk, Claudia Wilson,  
*Collections Managers*

Michael Lensch, Michael Tiren,  
*Supervisors*

Michael Gormaley, Joseph Mahoney,  
*Assistant Supervisors*

Robert Terracuso, Chris Wilgenkamp,  
*Primary Wild Animal Keepers*

Shizuko Aizeki-McElligott, Ralph  
Aversa, Michaelle Blatz, Kitty Dolan,  
Gilbert Gordian, Jr., Allison Hart,  
Denise Heinsinger, Loraine  
Hershonik, Karen Iannuccilli,  
Florence Klecha, Kathleen  
MacLaughlin, Joan McCabe-Parodi,  
Jeffrey Munson, Gerard Stark, Philip  
Steindler, Kristine Theis, Martin  
Zybura, *Senior Wild Animal Keepers*

Adedeji Afolalu, Avril Armstrong,  
Annemarie Bruen, Wendy Canino,  
Marleny Claro, Pat Connick, Adam  
Dillon, Dominick Dorsa, Brian  
Dudek, Donna Giunta, John  
Goldman, Scott Gunther, Gregory  
Heim, Vanessa Jones, Denise  
Kaufman, Brenda Kramer, Peter  
Laline, Robyn Lipschutz, Douglas  
Mase, John McElligott, Joanne  
McGillycuddy, Michelle Medina,  
Elizabeth Meehan, Elizabeth Mills,  
Yvonne Monge, Douglas Morea,  
Nichole Morabito, Margaret

Nunes, Raymond O'Neill, Shannon  
O'Reilly, Marc Pagnotta, Noel  
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Jennifer Stanley, Patricia Stark,  
Monika Strober, Anneke  
Vanrenesse, Jose Vasquez, Cheryl  
Verney, Lorainn Wade, *Wild  
Animal Keepers*

Laurence Gordon, Matthew Vara,  
*Maintainers*  
Lawrence D'Erasmus, *Assistant  
Maintainer*  
Rosanne Thiemann, *Supervising  
Secretary*

### Ornithology

Donald Bruning, *Chairman and  
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Christine Sheppard, *Curator*  
John Rowden, *Assistant Curator*  
Eric Edler, *Collection Manager*  
Marcia Arland, *Assistant  
Collection Manager*  
Patricia Cooper, Robert Edington,  
Susan Gormaley, Mark Hofling,



Kurt Hundgen, Kim Ann Hyde, Ann McCaffrey, Frank Paruolo, Paul Zabarauskas, *Senior Wild Animal Keepers*  
 Robin Beiner, Cheryl Calastro, Stephen Dusza, Nancy Gonzalez, Ingrid Jacobsen, David Kurlander, Emily Ladwig, Yvetta Pokorny, Jeremy Sanders, Robin Sobelman, *Wild Animal Keepers*  
 Mary Evans, *Secretary*

**Herpetology**  
 John Behler, *Curator*  
 Kevin Zippel, *Curatorial Intern*  
 William Holmstrom, *Collection Manager*  
 Christina Castellano, *Senior Wild Animal Keeper*  
 Joseph Abene, Samuel Lee, Marc Masio, Lisette Ramos, *Wild Animal Keepers*  
 Gail Bonsignore, *Supervising Secretary*

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 David Cole, *Director*  
 Roger Welch, *Deputy Director of Capital Projects*  
 Leila Herkommer, *Secretary*

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 Richard Luniewski, *Superintendent*  
 Michael Santomaso, *Foreman*  
 Cleve Ferguson, Joseph Goodman, Samuel Kindred, Anthony Laino, Amado Maldonado, Thomas Reilly, Mario Rolla, Jr., Robert Santarelli, Robert Stillwell, *Supervising Maintainers*  
 Anthony Bigone, Abraham Brown, Alfred D. Casella, Francis Cushin, John Galloway, Robert Gonzalez, Alfred Hart, John Ilenny, Gregory Kalmanowitz, Roopnarnine Maharaj, Michael Merkin, Winston Newton, Robert Reilly, Marconi St. Hill, Renzo Scarazzini, Edward Scholler, Armando Serrano, Enzo Tedesco, John Tiso, Jr., Nathaniel Torres, Calvin Tracey, Clive Wright, Carlos Yera, *Maintainers*

**Maintenance**  
 Raymond Kalmanowitz, *Superintendent*  
 Norman Janatsch, *Assistant Superintendent*  
 Frank Suarino, *Park Foreman*  
 Richard Chen, *Supervising Maintainer*  
 Anthony Corvino, John Tralongo, *Maintainers*  
 William Castro, Jr., Abraham Crespo, Gabriel Gomez, Pascual Luciano, Richard Riordan, Jose Rivera, Michael Sbarbori, *Assistant Maintainers*  
 Manuel Garcia, Jr., *Supervising Motor Vehicle Operator*

Joseph Gutleber, Wayne Harris, George Izquierdo, *Motor Vehicle Operators*  
 John Ferreira, *Supervising Attendant*  
 Patricia Kalinisan, *Senior Attendant*  
 Walter Almodovar, John Bruno, Jr., Migdalia Cordero, Pedro DeJesus, Peter Drosopoulos, Keith Harris, Alberto Jaime-Mindiola, Demond Jones, Manuel Moura, Maria Muniz, Eduardo Nelson, Theodore Olson, Gerard Palinkas, Vivian Palu, Marta Rivera, Victor Rodriguez, Natividad Ruiz, Edward Surdak, Rosemarie Villegas, Eduardo Vidal, Raymond Zelenka, *Attendants*  
 Isalene McKnight, *Secretary*

**Cogeneration**  
 Michael Henry, *Manager, Electric Services*  
 Alfred Jensen, *Supervisor*  
 Mark Anderson, David Bailey, Farouk Baksh, Hervin Brown, Edwin Otero, Keith Reynolds, *Maintainers*

**St. Catherines Wildlife Survival Center**  
 Jeffrey Spratt, *Curator*  
 Elizabeth Hudson, Eugene Kment, Robert Lessnau, *Senior Zoologists*  
 Kelly Shropshire, *Zoologist*  
 Jennifer Savage, *Zoological Technician*  
 Terry Norton, *Veterinarian*  
 Shelly Angell, *Veterinary Technician*  
 Royce Hayes, *Superintendent, St. Catherines Island*

**Science Resource Center**  
 George Amato, *Director*  
 Science and Technology  
 Susan Elbin, *Biologist*  
 Eric Sanderson, *Associate Conservation Ecologist, Geographic Analysis*  
 Salisa Rabinowitz, *Conservation Genetics Specialist*  
 Dianne Conner, *Keeper Training Coordinator*  
 Peter Brazaitis, Charles Koontz, Viveka Mansukhani, Linde Ostro, *Research Associates*

Mary Egan, Howard Rosenbaum, *Predoctoral Graduate Students*  
 John Sykes, *Student Intern*

**Wildlife Collection Services**  
 Nilda Ferrer, *Registrar*  
 Helen Basic, *Animal Records Specialist*  
 Anne Rockmore, *Animal Records Assistant*  
 Carmen Guzman, *Office Assistant*  
 Lynn Kirkland, *Wildlife Collection Intern*

**Wildlife Information Services**  
 Steve Johnson, *Supervising Librarian, Archivist*  
 Pravin Chandiramiani, *Library Assistant*

**Wildlife Health Sciences**  
 Robert Cook, *Chief Veterinarian and Director*  
 Virginia Walsh, *Office Manager*  
 Susan Cardillo, Lisa Eidlin, *Hospital Assistants*  
 Deborah Harris, *Secretary*

**Clinical Services**  
 Paul Calle, Bonnie Raphael, *Senior Veterinarians*  
 Tracy Clipinger, Sharon Deem, *Assistant Veterinarian*  
 Stephanie James, *Resident*  
 Pamela Torres, *Senior Veterinary Technician*  
 Nina Palmer-Sweeney, Peter Psillas, *Veterinary Technicians*  
 Dolores Sanginito, *Secretary*

**Field Veterinary Studies**  
 William Karesh, *Department Head*  
 Annelisa Kilbourn, *Wildlife Health Fellow*  
 Wendy Weisman, *Program Coordinator*

**Pathology**  
 Tracey McNamara, *Department Head, Schiff Family Distinguished Scientist in Wildlife Health*  
 Michael Linn, *Assistant Pathologist*  
 Nicole Gottdenker, *Pathology Resident*  
 Alfred Ngbokoli, *Laboratory Supervisor*  
 Aleksandr Goldman, *Histotechnician*

**Nutrition**  
 Ellen Dierenfeld, *Department Head, Marilyn M. Simpson Charitable Trust Distinguished Scientist in Wildlife Health*  
 Marianne Fitzpatrick, *Laboratory Supervisor*

**Animal Commissary**  
 George Fielding, *Manager*  
 Joseph Briller, *Associate Manager*  
 Antonio Aviles, *Maintainer*  
 Michael Marano, John Rosa, *Senior Wild Animal Keepers*



Opposite page: Outgoing WCS President William Conway with Bronx Zoo Animal Department and Health Center staff. Above: Hospital Assistant Susan Cardillo with baby fennec foxes.

## Staff

Alfredo Hernandez, John King, *Wild Animal Keepers*  
Michael Cruz, Moruf Egbo, *Assistant Maintainers*

### Exhibition and Graphic Arts

John Gwynne, *Director for Design*  
Eileen Cruz-Minnis, *Administrator*  
Gela Price, *Administrative Assistant*

#### Exhibition Design and Production

Lee Ehmke, *Associate Director*  
Walter Deichmann, *Creative Director*  
Susan Chin, *Architectural Project Manager*  
Jon Dohlin, Jennifer Lee, *Exhibit Designers*  
Gary Smith, *Senior Manager Exhibit Production*  
Jeannie Kolody-Egel, *Senior Exhibit Specialist*  
Matthew Aarvold, Ruth Marshall, Nelson Prado Jr., *Exhibit Specialists*

#### Graphics Design and Production

Charles Beier, *Associate Director*  
Sharon Kramer-Loew, *Creative Director*  
Ronald Davis, Gail Tarkan, Peter Taylor, *Graphic Designers*  
Nancy Fischer, *Graphic Artist*  
Sean McGuinness, *Graphics Intern*  
Paxton Barnes, *Interpretive Programmer*  
Christopher Maune, *Supervisor, Graphics Production*  
Donald O'Leary, Lawrence Yoches, *Graphics Specialists*

#### Bronx Zoo Horticulture

Robert Halpern, *Curator*  
Matthew Kibby, *Supervisor of Grounds*  
Wayne Bourdette, *Supervisor of Tropical Horticulture*  
Lisa Braidwood-Ferry, James Coelho, Robert Herkommer, David Hyde, Chris Lawlor, *Gardeners*  
Scott Dias, Michael Magrino, Anthony Quaglia, *Maintainers*  
Michael Cote, *Assistant Maintainer*

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Paul Boyle, *Deputy Director*  
Cynthia Reich, *Deputy Director, Aquarium Administration*  
Myra Mahl, *Secretary to the Director*  
Barbara Wechsler, *Secretary*

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Dennis Thoney, *General Curator*  
Paul Sieswerda, *Curator*  
Paul Loisel, *Curator, Freshwater Fish*  
Paul Cheung, *Pathologist*  
Kevin Walsh, *Director of Training*  
Martha Hiatt-Saif, Guenter Skammel, *Senior Trainers*  
Noreen Connolly, Kristin Tillis, *Trainers*

Patricia Coats, *Assistant Trainer*  
Hans Walters, *Supervisor*  
Michael Margano, *Assistant Supervisor*  
JoAnn Basinger, Leslie Effler, Werner Schreiner, Wayne Stempler, *Senior Keepers*  
Chad Coats, Amy Drohan, Karla Ferraro, Brenda Frost, Frank Greco, Mark Hall, Mark Kessel, Hing-Lung Lam, Stephanie Larkin, Paul Moylett, *Keepers*  
Catherine McClave, *Laboratory Supervisor*  
Jean Smith, *Laboratory Technician*  
Debbie Scher, *Assistant Laboratory Technician*  
Mary Messing, *Secretary*

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Ellie Fries, *Director*  
Merryl Kafka, *Assistant Director, Curriculum and Instruction*  
LeAnn Gast, *Assistant Director, Public Programming*  
Brad Burnham, Robert Cummings, *Instructors*  
Kristen Deckert, *Instructor Field Programs*  
Lisa Mielke, *Coordinator of Outreach Services*  
Susan Rolón, *Volunteer Coordinator*  
Maria Volpe, *Secretary*  
Pauline Catanzaro, *Senior Reservationist*

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Gilbert Francisco, *Director*  
William Barnes, Richard Biglin, William Sheehan, David Sheurich, *Supervising Maintainers*  
Richard DiStefano, Kenneth Prichett, Rafael Ramos, Fitz-Albert Reynolds, Albert Sortino, Tony Vargas, Dennis Walsh, George Wright, *Maintainers*  
Michael Budney, Richard Bullen, Alfred Escalera, Timothy Magee, Michael Tine, *Assistant Maintainers*  
Dante Delamos, *Supervisor of Buildings and Grounds*  
Howard Dunn, *Supervising Attendant*  
Robert Caraballo, Derrick Coleman, Raul Domenech, José Gonzalez, Rachel Farmer, Ed Lebron, Henry Lighty, Delcy Ramos, Carlos Sanchez, Alicia Shannon, Stanley Wasserman, *Attendants*  
Sylvia Jaffe, *Senior Secretary*  
Tonya Bell, *Clerk*

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Paul Heyer, *Manager*  
Debra Salomon, *Graphics Designer*  
Andrea Stanislav, *Exhibit Artist Manager*  
John Bennett, *Exhibit Artist*

#### Security

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Sal DeFeo, *Assistant Manager*  
Joseph Knowles III, *Supervisor*  
Samuel Black, Ricky Jackson, Owen Mayhew, *Maintainers*  
Andre George, Richard Jarus, Eddie Rodriguez, Kenton Spence, Henroy Thomas, Bonnie White, *Assistant Maintainers*

#### Business Services

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Laila Caune, Joseph Minieri, *Supervisors*  
Rocco Turco, *Unit Manager*  
Emanuel Koplin, *Assistant Unit Manager*  
Florence Goldberg, *Ticket Agent*

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Paul Boyle, *Director, Osborn Laboratories, Senior Research Scientist, Microbial Ecology*  
Ellen Pikitch, *Director of Fishery Programs, Senior Research Scientist, Fisheries Science*  
Louis Garibaldi, *Senior Applied Scientist, Aquarium Biology*  
Dennis Thoney, *Director, Coral Research Laboratory, Senior Research Scientist, Parasitology*  
Diana Reiss, *Senior Research Scientist, Marine Mammal Behavior*  
Andrew Baker, *Post Doctoral Research Fellow, Coral Biology*  
Paul Loisel, *Associate Research Scientist, Freshwater Conservation Biology*  
Paul Cheung, *Associate Research Scientist, Aquatic Animal Diseases*  
Beth Babcock, Geir Oddsson, *Graduate Research Fellows, Fisheries*  
Maya Natenson, *Associate Research Technician*  
Samuel Jones, IV, *Assistant Research Technician*  
Mildred Montalbano, *Librarian*

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Betty Borowsky, *Invertebrate Biology*  
John Chamberlain, *Paleobiogeology*  
David Franz, *Environmental Biology*  
Fred Koontz, *Wildlife Ecology*  
Martin Schreiber, *Endocrinology*  
John Tanacredi, *Ecotoxicology*

### CONSERVATION CENTERS

Richard Lattis, *Vice President, Director*  
Denise McClean, *Administrator*  
Eunice Casey, *Project Assistant*  
Sandra Black, *Secretary*  
Elyse Stein, *Graphic Designer*  
Betty Ng, *Junior Graphic Designer*  
Beverly Moss, *Secretary*

### Central Park Wildlife Center

Danny Wharton, *Director*  
Elizabeth Jardines, *Secretary*



Above: Senior Exhibit Specialist Jeanne Kolody-Egel unveils snake replica for Congo Gorilla Forest. Opposite page: Central Park Wildlife Center staff celebrate the park's tenth anniversary (left to right, Collection Manager Bruce Foster, Wild Animal Keeper Celia Ackerman, Senior Wild Animal Keeper Roy Riffe, and costumed character Ashley Trask.



# Animal Department

Donald Moore III, *Curator*  
 Bruce Foster, *Collection Manager*  
 Anthony Brownie, *Supervisor*  
 Suzanne Daley, Robert Granzay, Roy Riffe, William Shesko, Jr., *Senior Wild Animal Keepers*  
 Celia Ackerman, James Ayala, Charles Braun, Sal DiStefano, Jennifer Goodwin, Mark Halvorsen, Luis Jimenez, Raymond Maguire, John Roderick, Keith Walker, *Wild Animal Keepers*  
 Bernadine Leahy, *Veterinary Technician*

# Education

Ayo Moon, *Curator*  
 Jane Donnelley, *Volunteer Coordinator*  
 Randi Winter, *Education Coordinator*  
 John Fulweiler, *Theater Coordinator*  
 Laura Penn, *Instructor*  
 Miriam Hernandez, *Secretary*

# Horticulture

Nancy Tim, *Horticulturist*  
 John Collins, *Assistant Horticulturist*

# Operations and Maintenance

Joseph Nissen, *Manager*  
 Peter Delaney, *Assistant Manager*  
 Mong Lee, Hector Vargas, *Supervising Maintainer*  
 Michael Nedd, Junior Rookwood, *Maintainers*  
 Errol Bent, Jose Torres, *Assistant Maintainers*  
 Santa Alequin, Anthony Brehon, Zeneyda Colon, Eliot Diaz, Wayne Martin, Liza Olivo, Marlon Ragbir, Pablo Rivera, Altagracia Ronnie, Gladis Santana, *Attendants*  
 Edwina Jackson, *Secretary*  
 Rita Turrentine, *Receptionist*

# Security

Thomas Lennox, *Manager*  
 Frank Cangiarella, *Assistant Manager*  
 Fitzroy Neufville, *Maintainer*  
 Cecil Cain, Felito Cuevas, Carlton Davidson, Alston Dawkins, Alberto Gonzalez, Marilyn Maldonado, Marcelo Marquez, Frederick Miller, Nestor Morera, Jaime Pagan, Everton Pearson, Ramanen Veerapen, Eddie Wright, *Assistant Maintainers*

# Admissions

Stephen Carey, *Senior Clerk*  
 Melissa Ann Cruz, Sookiah Maharaj, Celvis Rock, *Ticket Agents*

# Prospect Park Wildlife Center

Lewis Greene, *Director*  
 Patricia Costanzo, *Secretary*

# Animal Department

Donna Fernandes, *Curator of Animals and Education*



Frank Indiviglio, *Supervisor*  
 Shoshana Abeles, *Assistant Supervisor*  
 David Autry, Frances Verna, *Senior Wild Animal Keepers*  
 Kristen Ampela, Chanda Bennett, Cathy Cottrell, Patricia Fulweiler, Dennis Maroulas, Daniel Matos, Jonathan Perez, Jennifer Skelly, David Wreck, *Wild Animal Keepers*  
 Erin Kalagassy, *Veterinary Technician*

# Education

Donna Fernandes, *Curator of Animals and Education*  
 Dominique Shimizu, *Senior Instructor*  
 Jennifer Richardson, Karalyn Rodenkirchen, *Instructors*  
 Dana Dalpra, *Volunteer Coordinator*  
 Betty Allen, *Secretary and Registrar*  
 Elizabeth McCrae, *Receptionist*

# Horticulture

Brenda Corbin, *Horticulturist*  
 Matthew Phillips, *Assistant Horticulturist*

# Operations and Maintenance

Mario Lopez, *Manager*  
 Robert Platt, *Assistant Manager*  
 Oscar Ceron, Norbett Wescott, *Maintainers*  
 Carlos Burga, Michael Fazio, Armin Rebatia, Martin Ricketts, Chaitram Singh, *Assistant Maintainers*  
 Robert Spicer, *Senior Attendant*  
 Anthony Brown, James Byrne, Luis Cruz, Robert Gonzalez, Judy Hankins, Steven Jones, Wayne Peters, *Attendants*

Catherine Baptiste, *Secretary*

# Security

John Balestrieri, *Manager*  
 Thomas Geraghty, *Assistant Manager*  
 David Evans, *Supervisor*  
 Wilbert Barton, Benjamin Brackeen, Milton Cameron, Theodore Capello, Rogelio Dickens, Vincent Ferguson, Domingo Rodriguez, Deborah Stevenson, Keith Thompson, Mitchell Thompson, Milton Williams, *Maintainers*

# Admissions

Joanne Carillo, Lola Chung, Paul DeJesus, Keisha Maxwell, *Ticket Agents*

# Queens Wildlife Center

Robin Dalton, *Director*  
 Anne Marie Scandura, *Secretary*

# Animal Department

Scott Silver, *Associate Curator*  
 James Gillespie, *Supervisor*  
 Donna-Mae Nelson, *Assistant Supervisor*  
 George Middleton, Laura Schwarz, Raul Vasquez, *Senior Wild Animal Keepers*  
 Maria Baione, Diane Bogdan, Dana Demond, James Efthimiou, Megan Fries, Marcos Garcia, Ira Goldman, Paul Kmiotek, Susan Makower, David Morales, Angel Ordonez, Naomi Reyes, Krzysztof Stopienski, Brendan Williams, *Wild Animal Keepers*

Kimm Koocher, *Veterinary Technician*

# Education

Thomas Hurtubise, *Curator*  
 Tamara Stanford, *Instructor and Volunteer Coordinator*  
 Jennifer Sparke, *Instructor*  
 Paulette Torres, *Secretary and Registrar*

# Horticulture

Louis Matarazzo, *Horticulturist*

# Operations and Maintenance

Robert Gavlik, *Manager*  
 Jeffrey Blatz, Anthony Boodoo, *Maintainers*  
 Rafael Genao, Krishna Juman, Eugene Teixeira, *Assistant Maintainers*  
 Oremstead Tillman, *Supervising Attendant*  
 Krishna Dookran, Myriam Martinez, Edwin Quinones, Carlos Valentin, Carol White, *Attendants*  
 Pamela Smalls, *Secretary and Telephone Operator*

# Security

Charles Anton, *Manager*  
 Frank Francavilla, *Assistant Manager*  
 John Patrissi, *Supervisor*  
 Paul Fairall, Debra Hall, Carlton Nelson, Rafael Nieves, Thomas Pappas, William Rosado, Kennedy Samuels, Allan Taylor, *Assistant Maintainers*

# Admissions

Tina Anderson, Sunil Chandrasekera, Joanne Crespo, *Ticket Agents*

## ENVIRONMENTAL EDUCATION

Annette Berkovits, *Vice President, The Chauncey Stillman Chair in Wildlife Education*

### Bronx Zoo Education

Annette Berkovits, *Director*  
Mary DeRosa, *Manager, Support Services*

General Audience and School Group Programs, Graduate Internships, and Teacher Training

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Opposite page: WCS field scientists Bruce and Carolyn Miller are surveying the bats of Belize. Above: Vice President of Public Affairs and Development Jennifer Herring and Director of Major Gifts Laura James at opening of Congo Gorilla Forest.

## Articles and Books by WCS Staff and Associates

(A more complete bibliography is available at the Science Resource Center Library.)

### ECOLOGY, FIELD CONSERVATION AND REINTRODUCTION

- Abernethy, K. A., and L. J. T. White. 1999. Like living vacuum cleaners, red river hogs give the forest floor a clean sweep. *Wildlife Conservation* 102 (4): 50-55.
- Albernaz, A., and J. M. Ayres. 1999. Selective logging along the middle Solimies River. In: *Varzea: Diversity, development and conservation of Amazonia's whitewater flood plains*. Eds. C. Padoch, J. M. Ayres, M. Pinedo-Vasquez, and A. Henderson, 135-152. 407 p. *Advances in Economic Botany* 13, New York: New York Botanical Garden.
- Arengo, F., and G. A. Baldassarre. 1998. Potential food availability and flamingo use of commercial salt impoundments in the Ria Lagartos Biosphere Reserve, Mexico. *Colonial Waterbirds* 21 (2): 211-221.
- Ayres, J. M., A. R. Alves, H. L. Queiroz, M. Marmontel, E. Moura, Magalhães Lima, A. Azevedo, M. Reis, P. Santos, R. da Silveira, and D. Masterson. 1999. Mamirauá, the conservation of biodiversity in an Amazonian flooded forest. In: *Varzea: Diversity, development and conservation of Amazonia's whitewater flood plains*. Eds. C. Padoch, J. M. Ayres, M. Pinedo-Vasquez, and A. Henderson, 203-217. 407 p. *Advances in Economic Botany* 13, New York: New York Botanical Garden.
- Baldassarre, G. A., F. Arengo, and E. Galicia. 1998. The grace of the Mexican flamingo. *Pronatura* 4: 39-43.
- Bass, A. L., C. Lagueux, and B. W. Bowen. 1998. Origin of green turtles, *Chelonia mydas*, at Sleeping Rocks off the northeast coast of Nicaragua. *Copeia* 0 (4): 1064-1069.
- Behler, J. L. 1999. *National Audubon Society first field guide: reptiles*. New York: Scholastic, Inc.
- Ben-Shahar, R. 1999. The influence of rainfall patterns on the carrying capacity of semi-arid nature reserves. *Proceedings of the Fourth Kenya Meteorological Society Workshop on Meteorological Research, Applications and Services*, Mombasa-Kenya 37-45.
- Ben-Shahar, R. 1999. *On the trail of the wild*. Cologne: Konemann Verlag.
- Berger, J. 1999. On intervention and the persistence of small populations



**WCS Field Veterinarian William Karesh autographs a copy of his book *Appointment at the Ends of the World* for WCS Group Sales Manager Margaret Price at a Barnes & Noble bookstore in New York City.**

- of bighorn sheep. *Conservation Biology* 13: 432-435.
- Berger, J. 1998. Some consequences of the loss and restoration of large mammalian carnivores on prey. In: *Behavioral ecology and conservation biology*. Ed. T. M. Caro, 80-100. New York: Oxford University Press.
- Berger, J., and C. Cunningham. 1998. Natural variation in horn size, social dominance, and its relevance to the conservation of black rhinoceros. *Conservation Biology* 12: 708-711.
- Bickford, D. 1999. To Catch A Frog. *Wildlife Conservation* 102 (3): 50-54.
- Boersma, P. D. 1998. The 1997-1998 El Niño: impacts on penguins. *Penguin Conservation* 11 (November): 10-11, 19.
- Boersma, P. D. 1999. Tuxedo Junction. *Wildlife Conservation* 102 (2): 26-23.
- Bosi, E. J., A. M. Kilbourn, W. B. Karesh, M. Andau, E. Taming, and J. Komiji. 1998. Orangutan nest counts using a helicopter at Tabin and Sepilok wildlife reserves, Sabah Malaysia. *Proceedings of the Great Ape Conference*.
- Campagna, C., F. Quintana, B. J. Le Boeuf, and D. E. Crocker. 1998. Diving behaviour and foraging ecology of female southern elephant seals from Patagonia. *Aquatic Mammals* 24 (1): 1-11.
- Carr III, A. 1998. The Big Green Seafood Machine. *Wildlife Conservation* 101 (4): 16-23.
- Chapman, C. A., and L. J. Chapman. 1999. Implications of small scale variation in ecological conditions for the diet and density of red colobus monkey. *Primates* 40: 215-232.
- Chapman, C. A., R. W. Wrangham, L. J. Chapman, D. K. Kennard, and A. E. Zanne. 1999. Fruit and flower phenology at two sites in Kibale National Park, Uganda. *Journal of Tropical Ecology* 15: 189-211.
- De la Riva, I., and L. Gonzales. 1998. Sobre la presencia de Pleurodema guayanae Barrio, 1964 (Anura, Lepidodactylidae) en Bolivia. *Alytes* 16 (1-2): 68-76.
- Fredericksen, T. S., D. J. Rumiz, J. Justiniano, and R. Aguaape. 1999. Harvesting free-standing fig trees for timber in Bolivia: potential implications for forest management. *Forest Ecology and Management* 116: 151-161.
- Glynn, P. W., D. Lirman, A. C. Baker, and G. E. Leyte Morales. 1998. First documented hurricane strikes on eastern Pacific coral reefs reveal only slight damage. *Coral Reefs* 17: 368.
- Jenkins, J. 1999. The Vanishing Sugar

- Maples. *Wildlife Conservation* 102 (1): 42-45.
- Karanth, K. U. 1999. Counting tigers with confidence. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 350-353. Cambridge: Cambridge University Press.
- Karanth, K. U. 1999. Here a deer.....there an elephant! *Wildlife Conservation* 102 (3): 30-35.
- Karanth, K. U., and B. Stith. 1999. Prey depletion as a critical determinant of tiger population viability. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 100-113. Cambridge: Cambridge University Press.
- Karanth, K. U., M. Sunquist, and K. M. Chinnappa. 1999. Long-term monitoring of tigers: lessons from Nagarhole. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 114-122. Cambridge: Cambridge University Press.
- Kremen, C., K. Lance, and I. Raymond. 1998. Interdisciplinary tools for monitoring conservation impacts in Madagascar. *Conservation Biology* 12: 549-563.
- Kremen, C., K. Lance, I. Raymond, and A. Weiss. 1999. Monitoring natural resource use on the Masoala Peninsula, Madagascar: a tool for managing integrated conservation and development projects. In: *Measuring conservation impact: an interdisciplinary approach to project monitoring and evaluation*. Eds. K. Saterson, R. Margoluis, and N. Salafsky, 63-84. Washington: Biodiversity Support Program.
- Kremen, C., V. Razafimahatratra, R. P. Guillery, J. Rakotomalala, A. Weiss, and J. Ratsitsompatriavo. 1999. Designing a new national park in Madagascar based on biological and socio-economic data. *Conservation Biology* 13: 1-14.
- Lewis, M. N., C. Campagna, F. Quintana, and Falabella V. 1998. Estado actual y distribución de la población del elefante marino del sur en la Península Valdes, Argentina. *Mastozoología Neotropical* 5 (1): 29-40.
- Lewis, M. N., and C. Campagna. 1998. Flipping sand in elephant seals. *Aquatic Mammals* 24 (3): 85-90.
- Loiselle, P. 1998. Arovy NY Trondro Malagasy! A collaborative effort to save Madagascar's freshwater fishes. *AZA Regional Conference Proceedings* 490-497.



- Lozado, J. R., and J. Ochoa G. 1999. Aspectos ambientales del manejo forestal en Venezuela: situación actual y perspectivas. In: *Jornadas sobre Desarrollo Sostenible del Medio Rural*. 109-118. 276 p. Caracas: Minist. Amb. Rec. Nat. Renov., Minist. Agric. Crça y Fundación Polar.
- Lynam, A. J., A. Rabinowitz, and U. Saw Tun Khaing. 1999. Tiger Traces. *Wildlife Conservation* 102 (3): 36-39.
- MacDonald, E. 1999. Uso del hábitat del armadillo de nueve bandas (*Dasypus novemcinctus*). *Boletín BOLFOR* 16: 6-7.
- McCarthy, T. M. 1999. Status and management of the Gobi bear in Mongolia. In: *Bears: status survey and conservation action plan*. Eds. C. Servheen, S. Herrero, and B. Peyton. Gland, Switzerland and Cambridge, UK: IUCN/SSC Bear and Polar Bear Specialist Groups.
- McClanahan, T. 1998. In living coral color. *Wildlife Conservation* 101 (4): 28-35.
- Merenlender, A. M., C. Kremen, M. Rakotondratsima, and A. Weiss. 1999. Monitoring impacts of natural resource extraction on lemurs on the Masoala Peninsula, Madagascar. *Conservation Ecology* 2 (2): 5.
- Mowry, C. B., C. McCann, R. Lessnau, and E. S. Dierenfeld. *Feeding ecology of Lemur catta: Implications for captive populations*. XVI Congress of International Primatological Society, Madagascar, 1998.
- Munoz, M. d. C., and J. Thorbjarnarson. 1999. Radio-tracking captive-reared Orinoco crocodiles (*Crocodyles intermedius*) released into the Capanaparo River, Venezuela. In *Crocodyles: Proceedings of the 14th working meeting of the Crocodile Specialist Group*. 313-319. Gland: IUCN.
- Noss, A. J. 1999. Censusing rainforest game species with communal net hunts. *Africa Journal of Ecology* 37 (1): 1-11.
- Obermeyer, K. E., A. Hodgson, and M. F. Willson. 1999. American dipper, *Cinclus mexicanus*, foraging on Pacific salmon, *Oncorhynchus* spp., eggs. *Canadian Field-Naturalist* 113 (2): 288-290.
- O'Farrell, M. J., C. Corben, W. Gannon, and B. W. Miller. 1999. Practical ANABAT: confronting the dogma. *Journal of Mammalogy* 80 (1): 297-302.
- O'Farrell, M. J., B. W. Miller, and W. Gannon. 1999. Acoustic monitoring protocol for free flying bats using the ANABAT system. *Journal of Mammalogy* 80 (1): 11-23.
- Ostro, L. E. T., S. C. Silver, and F. W. Koontz. 1999. A geographic information system method for estimating home range size. *Journal of Wildlife Management* 63 (2): 748-755.
- Ostro, L. E. T., S. C. Silver, F. W. Koontz, T. P. Young, and R. H. Horwich. 1999. Ranging behavior of translocated and established groups of black howler monkeys (*Alouatta pigra*) in Belize, Central America. *Biological Conservation* 87 (2): 181-190.
- Padoch, C., J. M. Ayres, M. Pinedo-Vasquez, and A. Henderson, Eds. 1999. *Varzea: Diversity, development and conservation of Amazonia's whitewater flood plains*. 407 p. *Advances in Economic Botany* 13, New York: New York Botanical Garden.
- Rabinowitz, A. 1999. Notes on the rare red goral (*Naemorhedus baileyi*) of north Myanmar. *Mammalia* 63 (1): 119-123.
- Rabinowitz, A. 1999. The present status of jaguars (*Panthera onca*) in the southwestern United States. *South-*



John Thorbjarnarson, International Programs, with Cuban crocodile.

- western Naturalist* 44 (1): 96-100.
- Rabinowitz, A. 1998. Status of the tiger in North Myanmar. *Tigerpaper* 25 (1): 15-20.
- Rabinowitz, A. 1999. The status of the tiger in Indochina: separating fact from fiction. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 148-165. Cambridge: Cambridge University Press.
- Rabinowitz, A. 1998. Turning over a new leaf. *Wildlife Conservation* 101 (6): 42-45.
- Rachlow, J. L., and J. Berger. 1998. Reproduction and population density: trade-offs for the conservation of rhinos in situ. *Animal Conservation* 1: 101-106.
- Robinson, J. G. 1999. Introduction: Conservation. In: *Varzea: Diversity, development and conservation of Amazonia's whitewater flood plains*. Eds. C. Padoch, J. M. Ayres, M. Pinedo-Vasquez, and A. Henderson, 197-202. 407 p. *Advances in Economic Botany* 13, New York: New York Botanical Garden.
- Rumiz, D. I. 1999. Conservando la biodiversidad de la bosques de Bolivia por medio de la Reversas Privadas del Patrimonio Natural. *Biletoin SBDA* [Bolivian Society for Environmental Rights] 4: 9-10.
- Schaller, G. B. 1998. Mongolia's Golden Horde. *Wildlife Conservation* 101 (6): 36-41.
- Sierra, R., F. Campos, and J. Chamberlin. 1999. *Áreas Prioritarias para la Conservación de la Biodiversidad en el Ecuador Continental. Un Estudio Basado en la Biodiversidad de Ecosistemas y su Ornitofauna*. Proyecto INEFAN/GEF, EcoCiencia and Wildlife Conservation Society.
- Soriano, P., A. Diaz de Pascual, J. Ochoa G., and M. Aguilera. 1999. Las comunidades de roedores en los Andes Venezolanos. In: *Biodiversidad en Iberoamérica*. Ed. G. Halffter, 197-213. Centro de Ecología UNAM y Fondo de Cultura Económica.
- Soriano, P., d. P. Dçaz, J. Ochoa G., and M. Aguilera. 1999. Biogeographic analysis of mammal communities in the Venezuelan Andes. *Interciencia* 24: 17-25.
- Sunquist, M., K. U. Karanth, and F. Sunquist. 1999. Ecology, behaviour and resilience of the tiger and its conservation needs. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 5-18. Cambridge: Cambridge University Press.
- Sweitzer, R. A., and J. Berger. 1998. Evidence for female-biased dispersal in North American porcupines. *Journal of Zoology* 244: 159-166.
- Thorbjarnarson, J. 1999. The hunt for black caiman. *International Wildlife* 29 (4): 12-19.
- Thorbjarnarson, J., and W. Xiaoming. 1999. The conservation status of the Chinese alligator. *Oryx* 33 (2): 152-159.
- Wallace, R. B., L. E. Painter, and A. B. Taber. 1998. Primate diversity, habitat preferences, and population density estimates in Noel Kempff Mercado National Park, Santa Cruz Department, Bolivia. *American Journal of Primatology* 46: 197-211.
- Walsh, P. D. 1999. Thar She Blows! *Wildlife Conservation* 102 (2): 52-55.
- Wikramanayake, E., E. Dinerstein, J. G. Robinson, K. U. Karanth, A. R. Rabinowitz, D. Olson, T. Matthew, P. Hedao, M. Connor, G. Hemley,

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and D. Bolze. 1998. An ecology-based method for defining priorities for large mammal conservation: the tiger as case study. *Conservation Biology* 12: 865-878.

Woodrooffe, R., and J. R. Ginsberg. 1999. Conserving the African wild dog, *Lycaon pictus*. I. Diagnosing and treating causes of decline. *Oryx* 33 (2): 132-142.

Woodrooffe, R., and J. R. Ginsberg. 1999. Conserving the African wild dog, *Lycaon pictus*. II. Is there a role for reintroduction? *Oryx* 33 (2): 142-151.

Wydevan, A., T. K. Fuller, W. Weber, and K. MacDonald. 1998. The potential for wolf recovery in the northeastern United States via dispersal from southeastern Canada. *Wildlife Society Bulletin* 26 (4): 776-778.

Yorio, P., E. Frere, P. Gandini, and G. Harris. 1998. Atlas de la distribución reproductiva de aves marinas en el litoral Patagónico Argentino. *Plan de Manejo Integrado de la Zona Costera Patagónica*. Buenos Aires: Fundación Patagonia Natural and Wildlife Conservation Society.

Yorio, P., A. Tagliorette, G. Harris, and M. Giaccardi. 1998. *Informes Técnicos del Plan de Manejo Integrado de la Zona Costera Patagónica*. Buenos Aires: Fundación Patagonia Natural.

Zahler, P., and A. Karim. 1998. New distribution, elevation, habitat, and diurnal refuge for the Kashmir flying squirrel *Eclogaomys fimbriatus*. *Mammalia* 62 (4): 588-591.

Zahler, P. 1998. The flap over the woolly flying squirrel. *Wildlife Conservation* 101 (5): 56-57.

## EDUCATION, HUMAN IMPACT, AND VISITOR STUDIES

Bennett, E. L., and J. G. Robinson. 1999. New wildlife law passed in Sarawak. *Wildlife Conservation* 101 (5): 10.

Bjork, R. Impactos de la alteración del bosque tropical en el uso espacial y temporal del hábitat por el Loro Real, Amazona farinosa, en la Reserva Biosfera Maya, Peten, Guatemala. *Reporte Anual de Progreso* 1998. Conap and IDAEH.

Brandon, K., K. H. Redford, and S. E. Sanderson, Eds. 1998. *Parks in peril: people, politics, and protected areas*. Island Press.

Da Silveria, R., and J. Thorbjarnarson. 1999. Conservation implications of commercial hunting of black and spectacled caiman in the Mamirauá Sustainable Development Reserve. *Biological Conservation* 88: 103-109.



**Bronx Zoo Herpetology Department**  
**Curator John Behler (above, in**  
**Madagascar) and National Audubon**  
**Society First Field Guide to Reptiles.**

Herrera, J. C. 1999. La extracción tradicional del asa (Euterpe precatoria). *Boletín BOLFOR* 16: 8-9.

Lewis, D. 1998. Portraits in conservation. *Wildlife Conservation* 101 (5): 26-35.

Redford, K. H. 1999. Culturally conflicting views of nature. *Conservation and Development Forum Discussion Paper*

Robinson, J. G. 1998. Evolving understanding of sustainable use. In: *Enhancing sustainability—resources for our future*. Eds. H. E. van der Linde, and M. H. Danskin, 3-5. Gland and Cambridge: IUCN.

Robinson, J. G., K. H. Redford, and E. L. Bennett. 1999. Wildlife harvest in logged tropical forests. *Science* 284: 595-596.

Thorbjarnarson, J. 1999. Crocodile tears and skins: international trade, economic constraints, and limits to the sustainable use of crocodilians. *Conservation Biology* 13 (3): 465-470.

Thorbjarnarson, J., and A. Velasco. 1999. Economic incentives for management of Venezuelan caiman. *Conservation Biology* 13 (2): 397-406.

Wikramanayake, E., E. Dinerstein, J. G. Robinson, K. U. Karan, A. R. Rabinowitz, D. Olson, T. Matthew,

P. Hedao, M. Connor, G. Hemley, and D. Bolze. 1999. Indices for ranking tiger conservation. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 347-349. Cambridge: Cambridge University Press.

Wikramanayake, E., E. Dinerstein, J. G. Robinson, U. Karan, A. R. Rabinowitz, D. Olson, T. Matthew, P. Hedao, M. Connor, G. Hemley, and D. Bolze. 1999. Where can tigers live in the future? A framework for identifying high-priority areas for the conservation of tigers in the wild. In: *Riding the tiger: tiger conservation in human-dominated landscapes*. Eds. J. Seidensticker, S. Christie, and P. Jackson, 255-272. Cambridge: Cambridge University Press.

## HUSBANDRY AND EXHIBITS, BEHAVIORAL ENRICHMENT

Bogdan, D., and D. M. Conner. 1998. Altering behavior in two species of captive felids (*Felis concolor* and *Lynx rufus*) through the introduction of animal scent. *AZA Regional Conference Proceedings* 406-412.

Loiselle, P. V., and J. Ferdnzi. 1998. Naturgeschichte und Aquarienhaltung von *Pachypanchax sakaramyi* (Holly 1928), der vergessene Killifisch von Madagaskar. *Deutsche Killifisch Gemeinschafts-Journal* 30 (1): 2-15.

McCann, C., and P. Stark. 1998. Notes on mother-offspring interactions in two white-cheeked gibbon

(*Hylobates concolor leucogenys*) offspring born nine months apart to the same breeding pair. *AZA Regional Conference Proceedings* (519):

Moore, D. 1988. Husbandry and breeding of North American ungulates at Burnet Park Zoo, Syracuse, and Thompson Park Conservancy, Watertown. *International Zoo Yearbook* 36: 234-246.

Spevak, E. M. 1998. The rise of butterfly houses and the future of invertebrate exhibits. *AZA Regional Conference Proceedings* 569-573.

Spevak, E. M. 1998. Using native butterflies as an exhibit alternative. *AZA Regional Conference Proceedings* 181-184.

## NUTRITION

Cosgrove, J. J., and E. S. Dierenfeld. 1999. Circulating alpha-tocopherol and retinol in free-ranging and captive penguins: speculation on dietary influences. *Penguin Conservation* 12 (1): 6-11.

Dierenfeld Ellen S., W. B. Karesh, B. L. Raphael, R. A. Cook, A. M. Kilbourn, E. J. Bosi, and M. Andau. 1998. Circulating alpha-tocopherol and retinol in free-ranging and zoo ungulates. *Proceedings of the Comparative Nutrition Society* 2:42-46.

Dierenfeld, E. S., and J. Syjagat. *Diet assimilation and plasma nutrient concentrations in three species of captive pteropodid bats*. First European Zoo Nutrition Meeting, Rotterdam, 1999.

Fitzpatrick, M. P., K. Dolan, and E. S. Dierenfeld. 1998. Mineral composition of selected temperate browse fed in zoo. *AZK Annual Conference Proceedings* 262-268.

Graffam, W., and E. S. Dierenfeld. *Zootrition: windows compatible dietary management software*. *Proceedings of the First European Zoo Nutrition Meeting*, Rotterdam, 1999.

Greco, F. M., M. P. Fitzpatrick, W. S. Graffam, E. S. Dierenfeld, and D. Thoney. 1998. Preliminary evaluation of selected nutrient composition of two life stages of *Artemia salina* before and after feeding an enriched torula yeast product. *AZA Regional Conference Proceedings* 443.

Maher, S., and E. S. Dierenfeld. 1998. Testing a new vitamin supplement paste on penguins. *Penguin Conservation* 11: 19-21.

Sabatini, J. A., E. S. Dierenfeld, M. Fitzpatrick, and L. Hashim. 1998. Effects of internal or external supplementation on the nutrient content of crickets. *Vivarium* 9: 23-24.

Schairer, M. L., E. S. Dierenfeld, and M. P. Fitzpatrick. 1998. Nu-



trient composition of whole green frogs (*Rana clamitans*) and southern toads (*Bufo terrestris*). *Bulletin of the Association of Reptilian and Amphibian Veterinarians* 8: 17-20.

Spevak, E. M., and E. S. Dierenfeld. 1999. Dietary husbandry of commonly exhibited terrestrial invertebrates. *Proceedings of the First European Zoo Nutrition Meeting*

Suedmeyer, W. K., and E. S. Dierenfeld. 1998. Clinical experience with fatty acid supplementation in a group of black rhinoceros (*Diceros bicornis*). *AAZV/AAWV Annual Conference Proceedings* 113-115.

# POPULATION BIOLOGY AND GENETICS, WILD

McNab, R. B., and J. Polisar. 1999. A participatory methodology for a rapid assessment of jaguar (*Panthera onca*) distributions in Guatemala.

McNab, R. B., and J. Polisar. 1999. Una metodologica participativa para una evaluacion rapida de la distribucion del (*Panthera onca*) distribuciones en Guatemala.

Ostro, L., T. P. Young, S. C. Silver, and F. W. Koontz. 1999. A geographic information system method for estimating home range size. *Journal of Wildlife Management* 63 (2): 748-755.

van Schaik, C. P. 1999. The socioecology of fission-fusion sociality in orangutans. *Primates* 40 (1): 69-86.

# REPRODUCTIVE PHYSIOLOGY AND TECHNOLOGY

Klecha, F., C. McCann, G. Scheffler, and D. Wittwer. 1998. Monitoring hormonal and morphological changes during pregnancy in a female Gelada baboon. *AZA Regional Conference Proceedings* 468.

# TAXONOMY, SYSTEMATICS, AND MOLECULAR GENETICS

Amato, G., M. C. Egan, and A. Rabinowitz. 1999. A new species of muntjac, *Muntiacus putaoensis* (Artiodactyla: Cervidae) from northern Myanmar. *Animal Conservation* 2 (1): 1-7.

Amato, G., M. G. Egan, G. B. Schaller, R. H. Baker, H. C. Rosenbaum, W. G. Robichaud, and R. DeSalle. 1999. Rediscovery of Roosevelt's barking deer (*Muntiacus rooseveltorum*). *Journal of Mammalogy* 80 (2): 639-643.

Caccone, A., G. Amato, O. C. Gratty, J. L. Behler, and J. R. Powell. 1999. A molecular phylogeny of four endangered Madagascar tortoises based on mtDNA sequences. *Molec-*

*ular Phylogenetics and Evolution* 12 (1): 1-9.

Carter, J. 1999. A genus and species key to the identification of the Pomacentridae (damsel-fishes) from the Western Central Atlantic. In: *FAO species identification guide for fishery purposes for the western central Atlantic*. Ed. K. Carpenter, Rome: Food and Agricultural Organization of the United Nations (FAO).

Carter, J., and J. Gibson. 1998. The reefs of Belize. In: *Latin American coral reefs*. Eds. E. J. Dahlgren, and J. Cortes. Elsevier Science.

Eisenberg, J. F., and K. H. Redford. 1999. *Mammals of the neotropics*. Volume III. The Central Neotropics. University of Chicago Press.

Zippel, K. C., R. E. Glor, and J. E. A. Bertram. 1999. On caudal prehensibility and phylogenetic constraint in lizards: the influence of ancestral anatomy on function in *Corucia* and *Furcifer*. *Journal of Morphology* 239: 143-155.

Zippel, K. C., H. B. Lillywhite, and C. R. J. Mladinich. 1998. Contribution of the vertebral artery to cerebral circulation in the rat snake *Elaphe obsoleta*. *Journal of Morphology* 238: 39-51.

# VETERINARY MEDICINE AND PHYSIOLOGY

Cook, R. A. 1999. The application of minimally invasive surgery for the diagnosis and treatment of captive wildlife. In: *Zoo and wild animal medicine: current therapy* 4. Eds. M. E. Fowler, and R. E. Miller. Philadelphia: W. B. Saunders.

Cook, R. A. 1999. Minimally invasive surgery in non-domestic animals. In: *Veterinary endosurgery*.

Cook, R. A. 1999. *Mycobacterium bovis* infection of cervids: Diagnosis, treatment, and control. In: *Zoo and wild animal medicine: current therapy* 4. Eds. M. E. Fowler, and R. E. Miller. Philadelphia: W. B. Saunders.

Falabella, V., M. Lewis, and C. Campagna. 1999. Development of cardiorespiratory patterns associated with terrestrial apneas in free-ranging southern elephant seals. *Physiological and Biochemical Zoology* 72 (1): 64-70.

Jacobson, E. R., J. L. Behler, and J. L. Jarchow. 1999. Health assessment of chelonians and release into the wild. In: *Zoo and wild animal medicine: current therapy* 4. Eds. M. E. Fowler, and R. E. Miller. Philadelphia: W. B. Saunders.

James, S. B., P. P. Calle, B. L. Raphael, S. L. Deem, and R. A. Cook. 1998. A survey for fecal *Clodtridium perfringens* and *C. difficile* toxins in primate feces at the Wildlife Conservation Park/Bronx Zoo. *AAZV/AAWV Annual Conference Proceedings* 119-121.

James, S. B., R. A. Cook, B. L. Raphael, M. D. Stetter, P. Kalk, K. MacLaughlin, and P. P. Calle. 1998. Immobilization of babirusa (*Babryrousa babryrussa*) with Xylazine and Tiletamine/Zolazepam and reversal with Yohimbine and Flumazenil. *AAZV/AAWV Annual Conference Proceedings* 204-206.

James, S. B., B. L. Raphael, and R. A. Cook. 1998. Brodifacoum toxicity

and treatment in a white winged wood duck (*Cairn scutulata*). *Journal of Zoo and Wildlife Medicine* 29 (3): 324-327.

Raphael, B. L. 1999. Okapi medicine and surgery. In: *Zoo and wild animal medicine: current therapy* 4. Eds. M. E. Fowler, and R. E. Miller, 646-649. Philadelphia: W. B. Saunders.

# ZOO/CONSERVATION POLICY, PHILOSOPHY, AND HISTORY

Acosta, C. A. 1999. Benthic dispersal of Caribbean spiny lobsters among insular habitats: implications for the conservation of exploited marine species. *Conservation Biology* 13 (3): 603-612.

Berger, J. 1999. Conservation and challenge on the Tibetan steppe. *Conservation Biology* 291-292.

Conway, W. 1998. Zoo reserves: a proposal. *AZA Annual Conference Proceedings* 54-58.

Erickson, D., E. Pikitch, E. Suuronen, E. Lehtonen, C. Bublit, C. Klinkert, and Mitchell C. 1999. *Selectivity and mortality of walleye pollock escaping from the codend and intermediate (=extension) section of a pelagic trawl*. Anchorage: Alaska Fisheries Development Foundation.

Munro, G., N. Bingham, and E. Pikitch. 1998. Individual transferable quotas, community based fisheries management systems and "virtual communities." *Fisheries Research* 32: 12-15.

Perez-Comas, J. A., D. Erickson, and E. K. Pikitch. 1998. Cod-end mesh size selection for rockfish and flatfish of the U.S. west coast. *Fisheries Research* 34: 247-268.

Pikitch, E. K. 1998. Our limited ocean. *Wildlife Conservation* 101 (4): 15.

Pikitch, E. K., J. R. Wallace, E. A. Babcock, D. L. Erickson, M. Saelens, and G. Oddson. 1998. Pacific halibut bycatch in the Washington, Oregon and California groundfish and shrimp trawl fisheries. *North American Journal of Fisheries Management* 18 (3): 569-586.

Robinson, J. G. 1998. Foreword. In: *Ecotraveller's wildlife guide*. L. Beletsky, New York and London: Academic Press.

Robinson, J. G. 1999. Losing the fat of the land [editorial]. *Oryx* 33 (1): 1.

Robinson, J. G. 1999. The responsibility to conserve wild species. In: *Humans and other animals*. Ed. A. Mack, 408-413. Columbus, Ohio: Ohio State University.

Robinson, J. G., and R. E. Bodmer. 1999. Towards wildlife management in tropical forests. *Journal of Wildlife Management* 63 (1): 1-13.

Science Resource Center Director George Amato (foreground) and field scientist Howard Rosenbaum prepare to dart humpback whales in Madagascar's Antongil Bay to obtain DNA samples for analysis.



## OPERATING EXPENSES

Bronx Zoo	\$37,882,000
New York Aquarium	10,216,000
Wildlife Centers	11,553,000
International Conservation	13,722,000
Total Society	\$73,373,000

## ATTENDANCE AT WCS FACILITIES

Bronx Zoo	2,227,660
JungleWorld	729,009
Children's Zoo	465,800
World of Reptiles	515,956
World of Darkness	565,044
Zoo Shuttle	327,070
Bengali Express	602,170
Skyfari	458,339
Camel Rides	87,628
New York Aquarium	766,017
Central Park Wildlife Center	1,015,023
Queens Wildlife Center	216,666
Prospect Park Wildlife Center	226,556
Total WCS Attendance	4,421,468

## MEMBERSHIP AND MAGAZINE

Members	103,109
Wildlife Conservation magazine	
Circulation	151,884

## ANIMAL

### CENSUSES

Bronx Zoo	6,445 animals of 665 species
Children's Zoo, Bronx Zoo	600 animals of 113 species
New York Aquarium	5,622 animals of 324 species
St. Catherine's Wildlife Survival Center	461 animals of 59 species
Central Park Wildlife Center	1,410 animals of 134 species
Queens Wildlife Center	405 animals of 67 species
Prospect Park Wildlife Center	382 animals of 82 species
Total WCS Census	15,325 animals of 1,444 species

### BIRTHS

#### AND HATCHINGS

Bronx Zoo	519
Bronx Zoo Children's Zoo	45
St. Catherine's Wildlife Survival Center	47
Central Park Wildlife Center	205
Queens Wildlife Park	12
Prospect Park Wildlife Center	59

## LEADERSHIP POSITIONS IN WILDLIFE CONSERVATION

Curators, keepers, biologists, veterinarians, and other scientists of WCS participate widely in the collaborative wildlife conservation efforts of the American Zoo and Aquarium Association (AZA), which represents over 180 accredited zoos and aquariums in North America, and the World Conservation Union (IUCN), a global network of governmental and non-governmental conservation organizations. Below are listed WCS staff who serve as officers in the work being performed by the AZA and the IUCN.

### American Zoo and Aquarium Association (AZA)

President-Elect: Richard Lattis.

Field Conservation Committee: William Conway, Chairman.

Regional Task Force: Richard Lattis, Chairman

Acquisition and Disposition Task Force: Richard Lattis, Chairman.

Finance/Investment Committee: Richard Lattis, Chairman.

Nominating Committee: Richard Lattis, Vice-Chairman.

Species Survival Plan (SSP) Coordinators: Babirusa,

Penny Kalk; Lowland gorilla, Dan Wharton; Asian wild horse, Patrick Thomas; Snow leopard, Dan Wharton; Sumatran rhinoceros, James G. Doherty; Great hornbill, Christine Sheppard; St. Vincent's Amazon, Don Bruning; Congo peafowl, Don Bruning; Mauritius pink pigeon, Kurt Hundgen; Chinese alligator, John Behler; Radiated tortoise, William Holmstrom.

North American Studbook Keepers: Lowland gorilla, Dan Wharton; Rock hyrax, Marian Glick-Bauer; Scarlet ibis, Anna Marie Lyles; Waldrapp ibis, Susan Elbin; St. Vincent's Amazon, Don Bruning; Mauritius pink pigeon, Kurt Hundgen; Common anaconda, William Holmstrom; Radiated tortoise, William Holmstrom; Beluga whale, Louis Garibaldi.

International Studbook Keepers: Mountain peacock pheasant, Don Bruning; Malayan peacock pheasant, Don Bruning; Great hornbill, Wendy Worth; Chinese alligator, John Behler.

Taxon Advisory Group (TAG) Chairmen or Co-Chairmen: Cervids/Tragulids, James G. Doherty; Ciconiiformes, Anna Marie Lyles; Coraciiformes, Christine Sheppard; Galliformes, Don Bruning and Christine Sheppard; Parrots, Don Bruning; Freshwater fishes, Paul Loiselle; Terrestrial invertebrates, Edward Spevak.

Scientific Advisory Groups (SAG): Systematics, George Amato.

AZA Nutritional Advisory Group. Executive Committee: Ellen Dierenfeld.

AZA Small Population Management Advisory Group. Advisor: Edward Spevak.

### American Association of Zoo Veterinarians

President: Robert Cook.

### The World Conservation Union (IUCN)

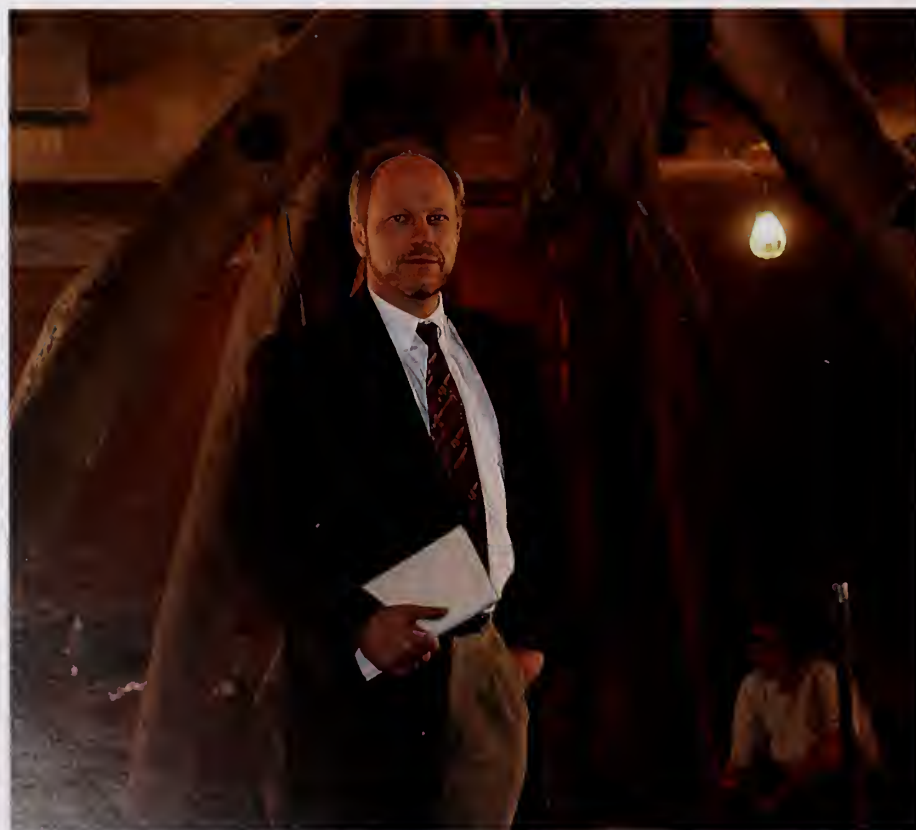
Steering Committee of the Species Survival Commission: John Robinson.

Pigs and Peccaries Specialist Group: Andrew Taber, Deputy Chairman.

Sustainable Use Specialist Group: John Robinson, Vice-Chairman.

Hornbill Specialist Group: Christine Sheppard, Secretary.

Tortoise and Freshwater Turtle Specialist Group. John Behler, Chairman.



Quiet moments at the Bronx Zoo's new Congo Gorilla Forest: Lee Ehmke, Associate Director of Exhibition Design and Production, takes a break during the construction (above); a Wolf's guenon enjoys the misty environment in its Central African rain forest habitat (top right).





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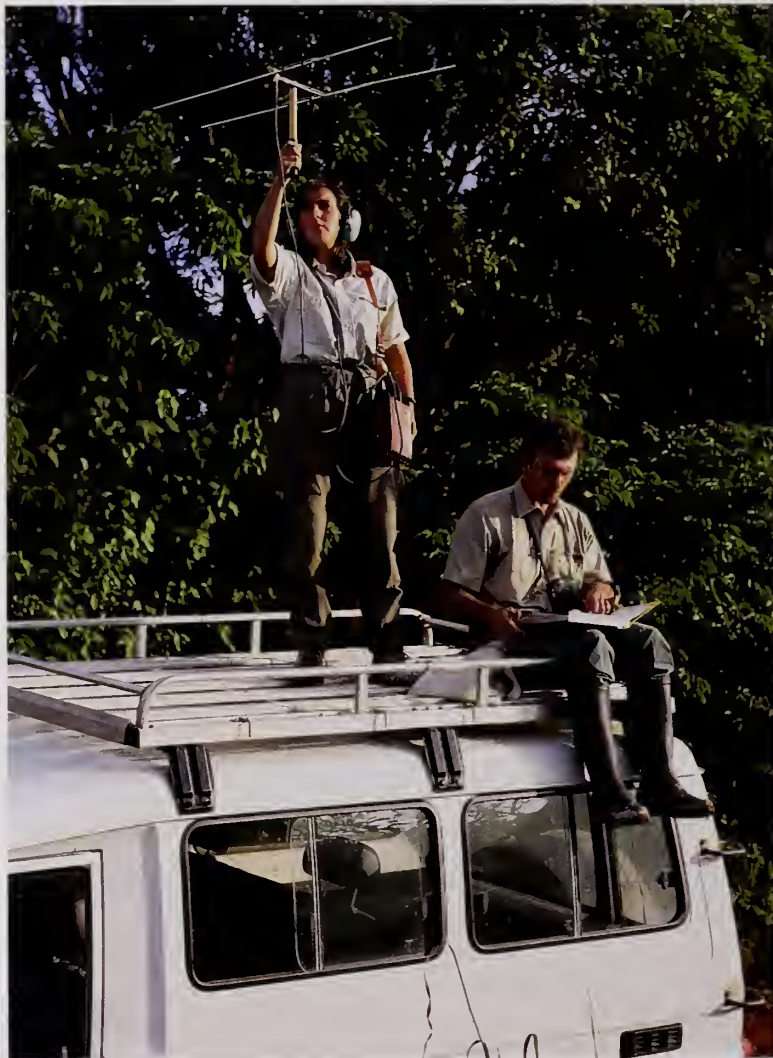
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## Recommended Form of Bequest

The Trustees of the Wildlife Conservation Society recommend that for estate planning purposes, members and friends consider the following language for use in their wills: "To the Wildlife Conservation Society, a not-for-profit, tax-exempt organization incorporated in the State of New York in 1895, having as its principal address the Wildlife Conservation Society, 2300 Southern Boulevard, Bronx, New York 10460, I hereby give and bequeath \_\_\_\_\_ for the Society's general purposes."

In order to help WCS avoid future administration costs, it is suggested that the following paragraph be added to any restrictions that are imposed on a bequest: "If at some future time, in the judgment of the Trustees of the Wildlife Conservation Society, it is no longer practical to use the income or principal of this bequest for the purposes intended, the Trustees have the right to use the income or principal for whatever purposes they deem necessary and most closely in accord with the intent described herein."

If you wish to discuss the language of your bequest with a member of the WCS staff, please be in touch with the Planned Giving Office (718) 220-5090.



## Wildlife **Conservation** Society

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